SUPER®

SUPER P4STA

(Pentium®4 1.5GHz-1.3GHz Processors
and Intel 850 Chipset Supported)

USER'S MANUAL

Revision 1.0

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Preface

About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPER P4STA motherboard. The SUPER P4STA supports Single Intel Pentium® 4 423-pin FPGA, 1.3 GHz -1.5 GHz+ processors at the front side bus speed of 400 MHz. Please refer to the support section of our web site (http://www.supermicro.com/TechSupport.htm) for a complete listing of supported processors.

Single 423-pin Pentium 4 PGA processors are housed in a 423-pin package.

Manual Organization

Chapter 1 includes a checklist of what should be included in your mainboard box, describes the features, specifications and performance of the SUPER P4STA mainboard and provides detailed information about the chipset.

Chapter 2 begins with instructions on handling static-sensitive devices. Read this chapter when you want to install the processor and RIMM memory modules and when mounting the mainboard in the chassis. Also refer to this chapter to connect the floppy and hard disk drives, the IDE interfaces, the parallel and serial ports and the twisted wires for the power supply, the reset button, the keylock/power LED, the speaker and the keyboard.

If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for the video, the memory and the setup configuration stored in CMOS. For quick reference, a general FAQ (Frequently Asked Questions) section is provided. Instructions are also included for contacting technical support. In addition, you can visit our web site at www.supermicro.com/techsupport.htm for more detailed information.

Chapter 4 includes an introduction to BIOS and provides detailed information on running the CMOS Setup utility.

The **Appendix A** provides BIOS POST Codes.

The **Appendix B** lists BIOS POST Messages

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Chapter 1
Introduction

1-1 Overview

Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance.

Please check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

One (1) Supermicro Mainboard

Two (2) ATA66/100 ribbon cable for IDE devices

One (1) floppy ribbon cable for (1) 5.25-inch floppy and (2) 3.5-inch floppy drives

One (1) Supermicro CD or diskettes containing drivers and utilities

One (1) User's/BIOS Manual

Two (2) CPU heat sink Holders (Retention)

Two (2) continous Memory Modules

CONTACTING SUPERMICRO

Headquarters

Address: Super Micro Computer, Inc.
2051 Junction Avenue
San Jose, CA 95131 U.S.A.
Tel: +1 (408) 895-2001
Fax: +1 (408) 895-2008
E-mail: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)
Web site: www.supermicro.com

European Office

Address: Super Micro Computer B.V.
Het Sterrenbeeld 28, 5215 ML,
's-Hertogenbosch, The Netherlands

Tel: +31 (0) 73-6400390
Fax: +31 (0) 73-6416525
E-mail: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)

Asia-Pacific

Tel: +886-2-8221-1690 ext.102
Fax : +886-2-82212790
E-mail: support@supermicro.com.tw
Web Site: www.supermicro.com.tw

SUPER P4STA

Figure 1-1. SUPER P4STA Image

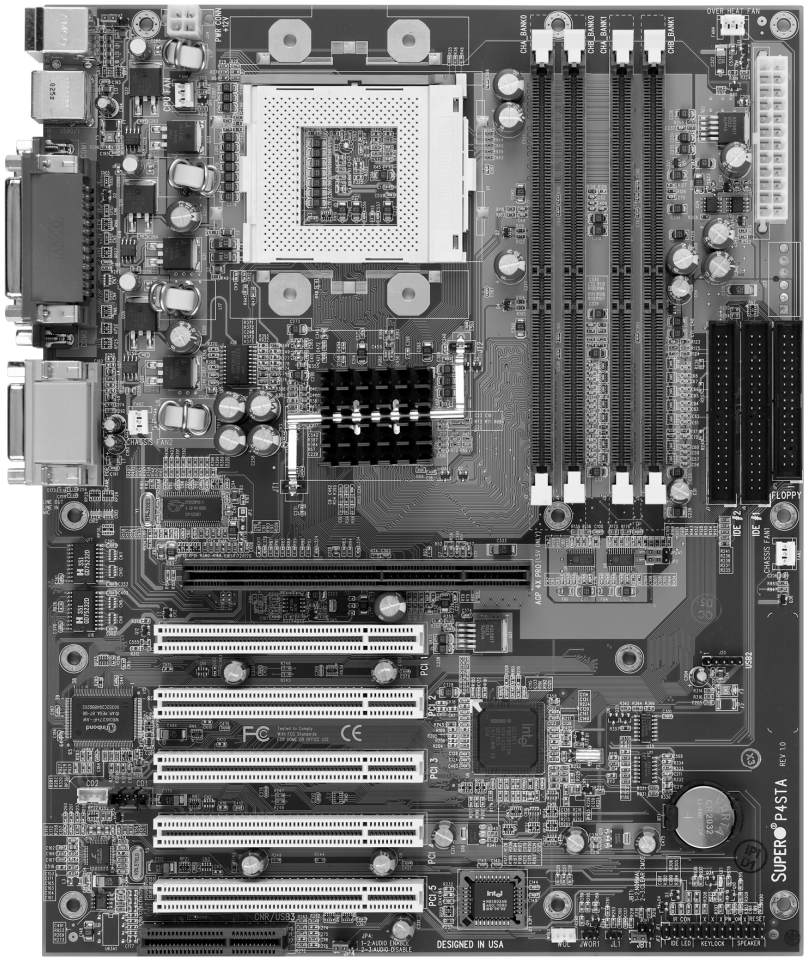
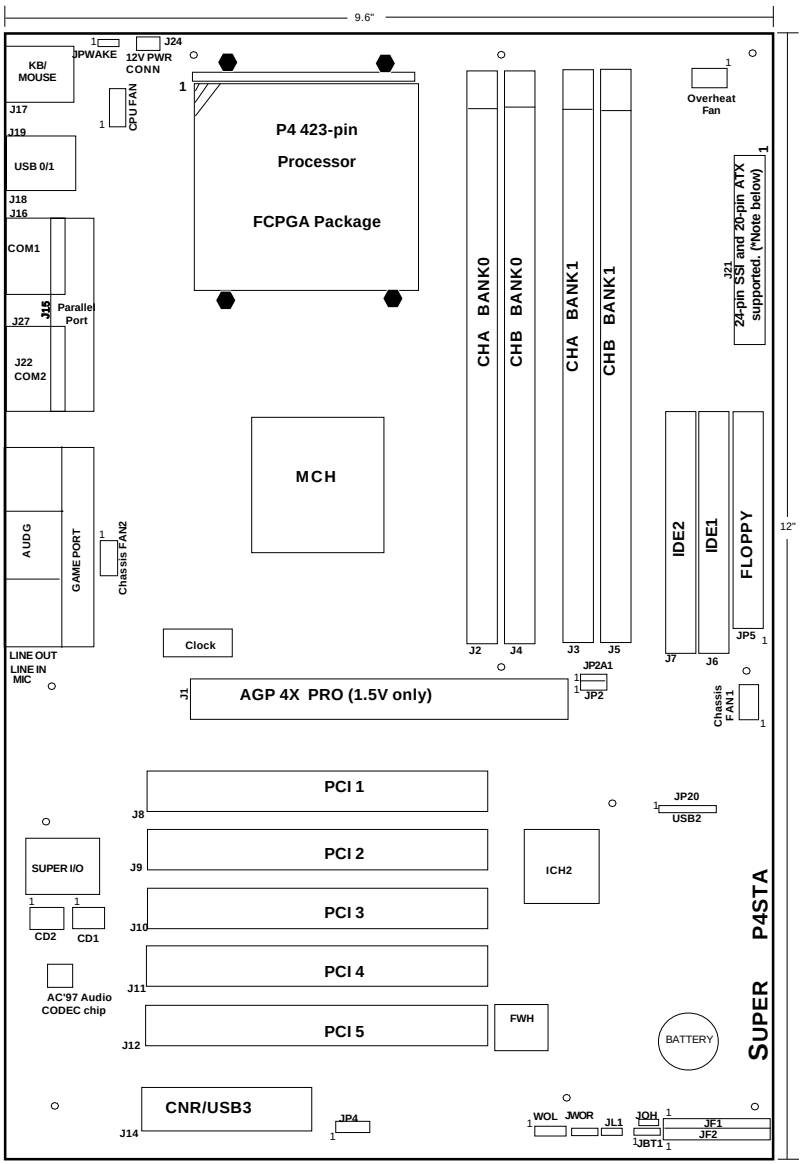


Figure 1-3. SUPER P4STA Layout
(not drawn to scale)



(*Note: The Power Supply meets the spec. of 24-pin SSI connector, but it also supports a 20-ATX connector. Make sure that Pin1 of the PS connector is seated on Pin 1 of J21.)

P4STA Quick Reference

Jumpers	Description	Default Setting
JBT1	CMOS Clear	Pins 1-2 (Normal)
J2/J2A1	Memory Speeds	(see the table below)

JP2	JP2A1	RAMBUS
1-2	1-2	AUTO
2-3	OPEN	300 MHZ
OPEN	OPEN	400MHZ

JP4	AC97 Audio	Pins 1-2 (Enabled)
JPWAKE	Keyboard Wake-Up	Pins 1-2 (Disabled)

Connectors	Description
CD1	Audio CD Input (large connector)
CD2	Audio CD Input (small connector)
CNR	Communications/Networking Riser
COM1/COM2	COM1/COM2 Serial Port Connector
CPU FAN	CPU Fan Header
Chassis Fan	Chassis Fan Header
Overheat Fan	Thermal Control Fan Header(OH Backup Fan) GAME Game Port
J2, J3, J4, J5	Memory (RIMM) Slots
J6, J7	IDE Hard Disk Drive Connectors
JP5	Floppy Disk Drive Connector
*J21, J24(See Notes)	ATX 12V Power Connector (1: 24-pin,1: 4pin)
J17	PS/2 Keyboard/Mouse
J18, J19, J20	Universal Serial Bus Ports
J15	Parallel Printer Port
JF1, JF2	Front Control Panel
JL1	Chassis Intrusion Header
JOH	Overheat LED
JWOR	Wake-On-Ring Header
LINE IN	Audio In Connector
LINE OUT	Audio Out (Speaker) Connector
MIC	Microphone Input
USB3	Universal Serial Bus Port #3
WOL	Wake-on-LAN Header

*Notes:1. J24 4-pin connector must be connected to meet the safety requirement of the ATX 12 V Spec. unless you have a SSI 24-pin power supply. (If you have a SSI 24-pin Power Supply, you need to populate J21.) 2. Also see chapter 2 for detailed information on Jumpers, I/O ports and JF1/JF2-Front Panel Connectors (Pg.2-6). Jumpers not indicated are for test purposes only.

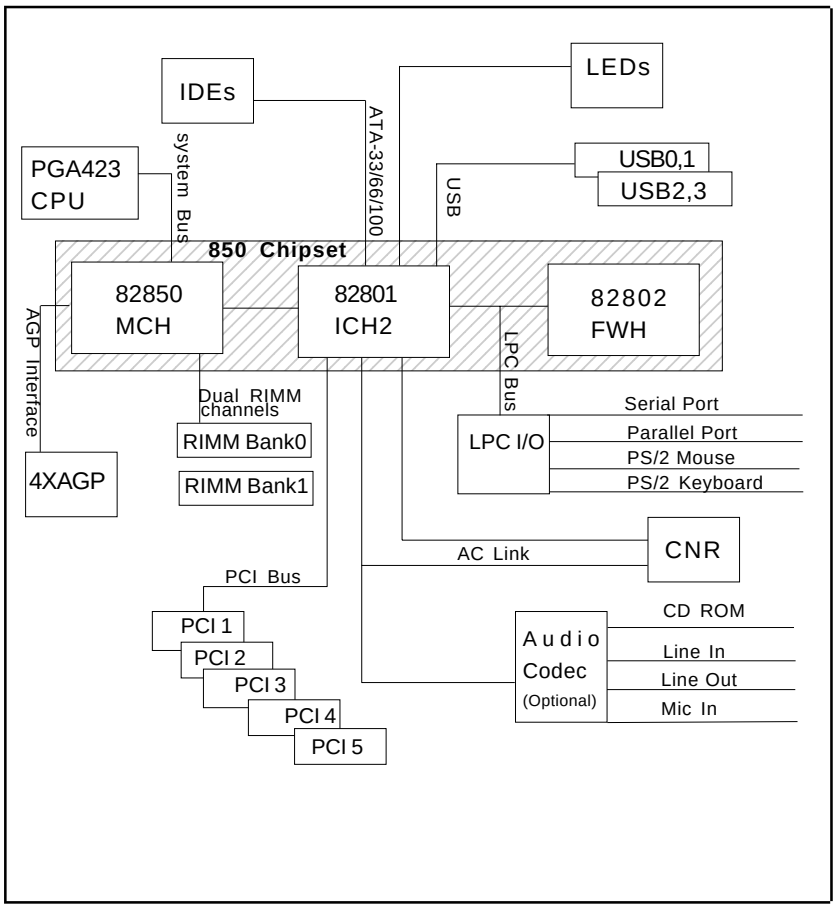


Figure 1-5. 850 Chipset: System Block Diagram

NOTE: This is a general block diagram and may not exactly represent the features on your motherboard. See the following pages for the actual specifications of each motherboard.

Features of the P4STA Motherboard

CPU

- Single Pentium® 4 423-pin PGA 1.3 GHz-1.5 GHz+ processors at 400 MHz front side bus speed

Memory

- Four 184-pin RIMM modules for 600/800 MHz RDRAM memory up to 2 GB. Error Checking & Correction and Parity Checking are fully supported.

Chipset

- Intel 850 Chipset

Expansion Slots

- Five 32-bit PCI slots
- One 4x AGP Pro (1.5V) slot
- One CNR (Communications and Network Riser Card) slot

BIOS

- 4 Mb Firmware Hub Award BIOS® Flash BIOS
- APM 1.2, DMI 2.3, PCI 2.2, ACPI 1.0, Plug and Play (PnP)

PC Health Monitoring

- Seven onboard voltage monitors for CPU core, chipset voltage, +3.3V, +5V and ±12V
- Three-fan status monitor with firmware/software on/off control
- Environmental temperature monitoring and control
- CPU fan auto-off in sleep mode
- Power-up mode control for recovery from AC power loss
- System overheat LED and control
- System resource alert
- Hardware BIOS virus protection
- Auto-switching voltage regulator for the CPU core

ACPI/PC 98 Features

- Microsoft OnNow
- Slow blinking LED for suspend state indicator

- BIOS support for USB keyboard
- Real-time clock wake-up alarm
- Main switch override mechanism
- External modem ring-on

Onboard I/O

- Dual Ultra DMA Bus Master with DMA IDE 100MB supported
- 1 floppy port interface (up to 2.88 MB)
- 2 Fast UART 16550A compatible serial ports
- 1 EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) supported parallel port
- PS/2 mouse and PS/2 keyboard ports
- 1 infrared port
- 4 USB (Universal Serial Bus) ports

Other

- Internal/external modem ring-on
- Recovery from AC power loss control
- Wake-on-LAN (WOL)
- Multiple CPU clock frequency ratio selections (set in BIOS)

CD Utilities

- BIOS flash upgrade utility
- Drivers for 850 chipset utilities

Dimensions

- ATX: 12" x 9.6" (305 x 244 mm)

1-2 Chipset Overview

Intel's 850 chipset is made up of three main components:
*82850 Memory Controller Hub (MCH) with Accelerated Hub Architecture (AHA) bus,

*82801 BA I/O Controller Hub (ICH2) with AHA bus,

*82802 AB Firmware Hub (FWH).

Memory Controller Hub (MCH)

The MCH includes the host (CPU) interface, RDRAM interface, ICH interface and 4xAGP interface for the 850 chipset. It contains advanced power management logic and supports dual channels for RDRAM. The AGP 2.0 interface supports 4x data transfers and operates at a peak bandwidth of 1056 GB. The MCH host interface bus runs at 100 MHz.

I/O Controller Hub (ICH2)

The ICH2 is the I/O Controller Hub subsystem on the P4STA, which integrates many of the Input/Output functions of the 850 chipset, including a two-channel ATA-33/66/100 Bus Master IDE controller. It also provides the interface to the PCI Bus and communicates with the MCH over a dedicated hub interface bus-the AHA. The P4STA has the more powerful ICH2, which includes a dual channel IDE controller and two USB controllers that offer 24 Mbps of bandwidth across four ports. ICH2 also features an enhanced AC'97 interface that supports full surround sound for the Dolby Digital Audio used on DVDs.

Firmware Hub (FWH)

The FWH is a component that brings added security and manageability to the PC platform infrastructure. This device includes an integrated Random Number Generator (RNG) for stronger encryption, digital signing and security protocols. The FWH stores the system BIOS and video BIOS to eliminate a redundant nonvolatile memory component.

Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power on state. See the Power Lost Control setting in the BIOS chapter of this manual to change this setting. The default setting is Always OFF.

1-3 Special Features

Communication and Networking Riser

The CNR slot supports audio, modem and networking cards and provides interfaces that support multichannel audio, V.90 analog modems, home networking through a telephone line, 10/100 Ethernet-based networking and future technologies. Separating sound and communications systems from the motherboard makes them less sensitive to noise.

1-4 PC Health Monitoring

This section describes the PC health monitoring features of the SUPER P4STA. Both have an onboard System Hardware Monitor chip that supports PC health monitoring.

Seven Onboard Voltage Monitors for the CPU Core, Chipset Voltage, +3.3V, +5V and ±12V

The onboard voltage monitor will scan these seven voltages continuously. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Three-Fan Status Monitor with Firmware/Software On/Off Control

The PC health monitor can check the RPM status of the cooling fans. The onboard 3-pin CPU and chassis fans are controlled by the power management functions. The thermal fan is controlled by the overheat detection logic.

Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. It can continue to monitor for overheat conditions even when the CPU is in sleep mode. Once it detects that the CPU temperature is too high, it will automatically turn on the thermal control fan to prevent any overheat damage to the CPU. The onboard chassis thermal circuitry can monitor the overall system temperature and alert users when the chassis temperature is too high.

CPU Fan Auto-Off in Sleep Mode

The CPU fan activates when the power is turned on. It can be turned off when the CPU is in sleep mode. When in sleep mode, the CPU will not run at full power, thereby generating less heat.

CPU Overheat LED and Control

This feature is available when the user enables the CPU overheat warning function in the BIOS. This allows the user to define an overheat temperature. When this temperature is exceeded, both the overheat fan and the warning LED are turned on.

System Resource Alert

This feature is available when used with Intel's LANDesk Client Manager (optional). It is used to notify the user of certain system events. For example, if the system is running low on virtual memory and there is insufficient hard drive space for saving the data, you can be alerted of the potential problem.

Hardware BIOS Virus Protection

The system BIOS is protected by hardware so that no virus can infect the BIOS area. The user can only change the BIOS content through the flash utility provided by SUPERMICRO. This feature can prevent viruses from infecting the BIOS area and destroying valuable data.

Auto-Switching Voltage Regulator for the CPU Core

The 3-phase-switching voltage regulator for the CPU core can support up to 60A current and auto-sense voltage IDs ranging from 1.1V to 1.85V. This will allow the regulator to run cooler and thus make the system more stable.

1-5 ACPI/PC 99 Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers. This also includes consumer devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with both Windows 98 and Windows NT 5.0. **Note:** To utilize ACPI, you must reinstall Windows 98. To reinstall Windows 98 with ACPI, enter DOS and type "setup /p J" at the CDROM prompt (usually D:\) with the Windows 98 CD loaded. (Make sure you include the spaces after "setup" and "p".) Then hit <Enter>. You can check to see if ACPI has been properly installed by looking for it in the Device Manager, which is located in the Control Panel in Windows.

Microsoft OnNow

The OnNow design initiative is a comprehensive, system-wide approach to system and device power control. OnNow is a term for a PC that is always on but appears to be off and responds immediately to user or other re-

quests.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will wake-up and the LED will automatically stop blinking and remain on.

BIOS Support for USB Keyboard

If the USB keyboard is the only keyboard in the system, it keyboard will function like a normal keyboard during system boot-up.

Real Time Clock Wake-Up Alarm

Although the PC may be perceived to be off when not in use, it is still capable of responding to preset wake-up events. In the BIOS, the user can set a timer to wake-up the system at a predetermined time.

Main Switch Override Mechanism

When an ATX power supply is used, the power button can function as a system suspend button. When the user depresses the power button, the system will enter a SoftOff state. The monitor will be suspended and the hard drive will spin down. Depressing the power button again will cause the whole system to wake-up. During the SoftOff state, the ATX power supply provides power to keep the required circuitry in the system alive. In case the system malfunctions and you want to turn off the power, just depress and hold the power button for 4 seconds. The power will turn off and no power will be provided to the motherboard.

Wake-On-Ring Header

Wake-up events can be triggered by a device such as the external modem ringing when the system is in the SoftOff state. Note that external modem ring-on can only be used with an ATX 2.01 (or above) compliant power supply.

Wake-On-LAN (WOL)

Wake-On-LAN is defined as the ability of a management application to remotely power up a computer that is powered off. Remote PC setup, updates and asset tracking can occur after hours and on weekends so that daily LAN traffic is kept to a minimum and users are not interrupted. The motherboards have a 3-pin header (WOL) to connect to the 3-pin header on a Network Interface Card (NIC) that has WOL capability. Wake-On-LAN must be enabled in BIOS. Note that Wake-On-Lan can only be used with an ATX 2.01 (or above) compliant power supply.

1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates of 1.3 GHz and above.

The SUPER P4STA accommodates ATX 12V power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate.

It is strongly recommended that you use a high quality power supply that meets ATX 12V power supply Specification 1.1 or above. Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

1-7 Super I/O

The disk drive adapter functions of the Super I/O chip include a floppy disk drive controller that is compatible with industry standard 82077/765, a data separator, write pre-compensation circuitry, decode logic, data rate selection, a clock generator, drive interface control logic and interrupt and DMA logic. The wide range of functions integrated onto the Super I/O greatly reduces the number of components required for interfacing with floppy disk drives. The Super I/O supports four 360 K, 720 K, 1.2 M, 1.44 M or 2.88 M disk drives and data transfer rates of 250 Kb/s, 500 Kb/s or 1 Mb/s.

It also provides two high-speed, 16550 compatible serial communication ports (UARTs), one of which supports serial infrared communication. Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through an SMI or SCI function pin. It also features auto power management to reduce power consumption.

The IRQs, DMAs and I/O space resources of the Super I/O can be flexibly adjusted to meet ISA PnP requirements, which suppport ACPI and APM (Advanced Power Management).

Notes

Chapter 2
Installation

2-1 Static-Sensitive Devices

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.

Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

Installation Procedures

Follow the procedures below for the installation of the motherboard and the system:

1. Installing the processor and the heat sink.

2. Installing the motherboard in the chassis.

3. Installing the memory and add-on cards.

4. Finally, installing the cables and drivers.

2-2 Processor and Heat Sink Installation

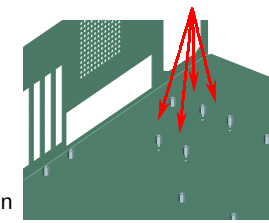
When handling the processor package, avoid placing direct pressure on the label area of the fan.

IMPORTANT: Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heat sink.

Installation of the Processor and Heat Sink

1. Locate the following components that are included in the shipping package.

(*Note: These screws are to be used for mounting the motherboard on the back panel of the chassis that has 4 mounting holes.)

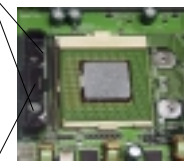


(*For the chassis that does not have 4 holes in the chassis:)

2. Insert white pegs into the holes of black pegs. (Do not push the white pegs all the way into the holes of black pegs. Only 1/3 of white pegs should be inside the holes of black pegs.)

Two pegs in the position

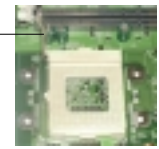
3. Place a retention in its position and secure the retention in its position by pressing two pegs into the retention holes until you hear the click sound. (*The click sound indicates that the peg is locked and secured.)

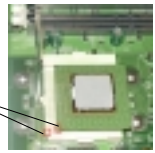


One Retention in its position

4. Secure another retention into its position by repeating Step 3.

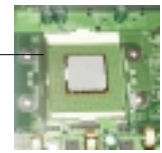
5. Lift the CPU socket lever.





6. Install the CPU in the socket. Make sure that Pin 1 (the corner with a triangle) of the CPU is seated on Pin 1 of the socket (the corner with a triangle).

7. Press down the lever into its lock position until you hear a click sound.

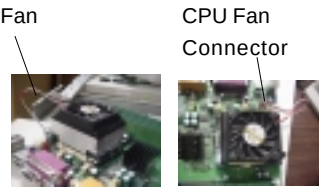


8. Apply the proper amount of thermal glue on the CPU die.

9. Place the heat sink on the top of the CPU.

10.Secure the heat sink in its proper position by locking the retention clips into the proper position.

11. Connect the cord of CPU Fan to the CPU Fan Connector.



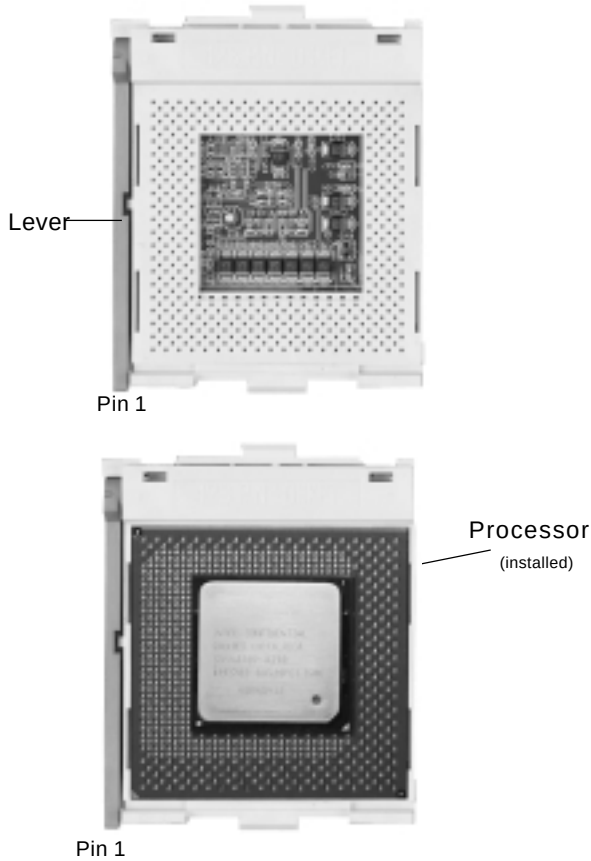


Figure 2-1. PGA 423-Pin Socket: Empty and with Processor Installed

2-3 Mounting the Motherboard in the Chassis

All motherboards have standard mounting holes to fit different types of chassis. Chassis may include a variety of mounting fasteners made of metal or plastic. Although a chassis may have both types, metal fasteners are the most highly recommended because they ground the motherboard to the chassis. For this reason, it is best to use as many metal fasteners as possible.

2-4 Installing RIMMs

CAUTION

Exercise extreme care when installing or removing RIMM modules to prevent any possible damage.

RIMM Installation (See Figure 2-2)

1. Insert a pair of RDRAM modules (of the same type and the same size) in the two slots of Bank 0 first (Figure 2-2B). If needed, insert another pair of RDRAMs (of the same type and same size) into both slots of Bank1 (Figure 2-2A).
   However, if you only install two RDRAM modules on the two slots of Bank0, then, you need to populate both slots of Bank1with two "Continuous Memory Modules" to close the signal loop in order to meet the requirement Rambus Interface (Figure 2.2B). See "RAMBUS Support" below for details on supported memory.

2. Insert each RDRAM module vertically into its slot. Pay attention to the two notches along the bottom of the module to prevent inserting the RDRAM incorrectly.

3. Gently press down on the RDRAMs module until it snaps into place.

4. The P4STA will support two (2) or four (4) (600 MHz or 800 MHz) modules of 184-pin RDRAM with a total up to 2GB MB of system memory. Both ECC (Error Checking Correction) and Parity Checking are supported. PC133 and PC100 memory are also fully supported at their respective speeds.

RAMBUS Support (Important!)

The Memory Controller Hub (MCH) enables the use of RAMBUS in the RIMM slots on the P4STA. This hub supports both ECC and non-ECC type memory. Check the Memory ECC Mode BIOS setting to enable the use of ECC. (See Section 1-2 for more on the MCH.)

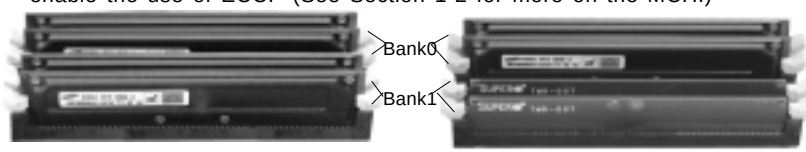
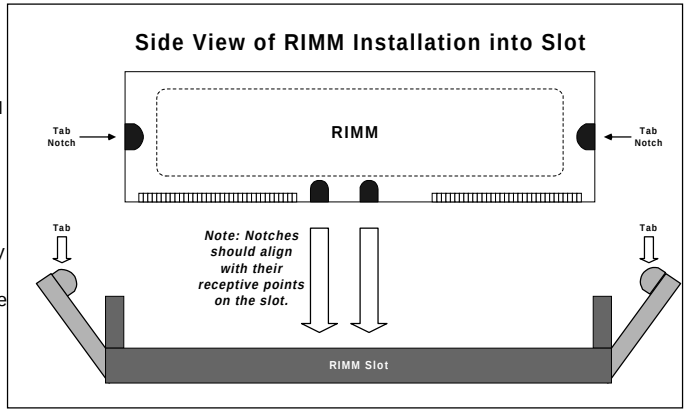
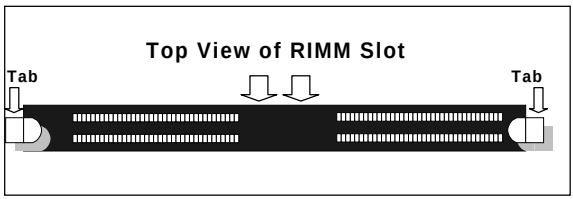


Figure 2-2A. Bank0/Bank1 with 4 RIMMs installed Figure 2-2B. Bank0: 2RIMMs & Bank1: 2 Continuous Memory Modules installed

Figure 2-3. RIMM Installation

To Install:
With the tabs pulled outward, insert the RIMM module vertically and press down straight down until it snaps into place. Pay attention to the alignment of the two notches.





To Remove:
Use your thumbs to gently push out the tabs at both ends of the module. This should release it from the slot.

2-5 Port/Control Panel Connector Locations

The I/O ports are color coded in conformance with the PC99 specification to make setting up your system easier. See Figure 2-3 below for the colors and locations of the various I/O ports.

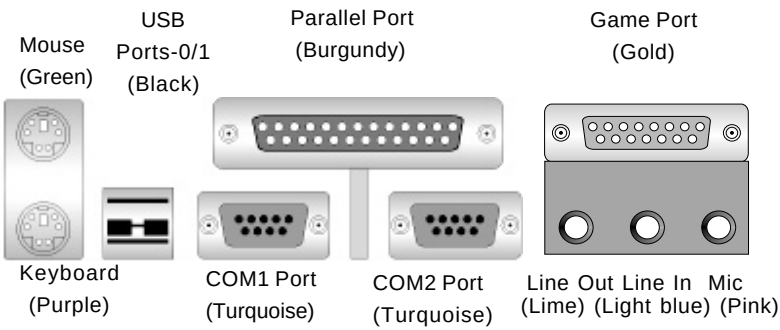


Figure 2-3. I/O Port Locations and Definitions

Front Control Panel

JF1 and JF2 contain header pins for various front control panel connectors. See Figure 2-4 for the pin definitions of the speaker, keyboard lock, hard drive LED, infrared connector, and power on and reset button headers, which are all located on JF1 and JF2. Refer to pages 2-7 to 2-8 for details.

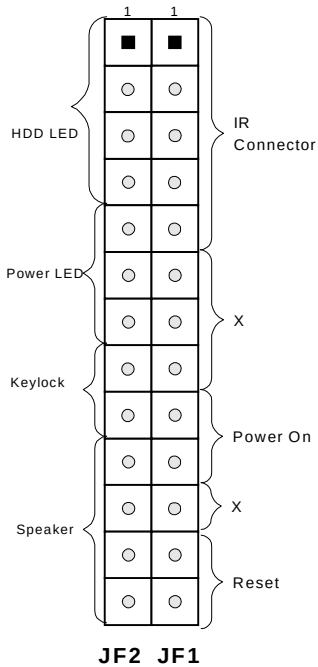
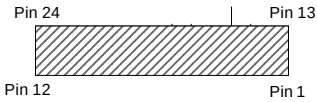


Figure 2-4. Front Control Panel Connectors

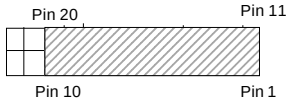
2-6 Connecting Cables (see previous page for locations)

Power Supply Connector

The primary power supply connector on the P4STA meets the SSI (Superset ATX) 24-pin specifications; however, it also supports an ATX 20-pin connector. Thus, both 20-pin ATX and 24-pin SSI connectors can be installed on the P4STA as long as the PS connector is correctly oriented. (Make sure that pin 1 of the PS connector is seated on pin 1 of the header of J21). If a 24-pin connector is used, please refer to Table 2-1a for pin definitions. (Also see Figure A below for connector orientation). If a 20-pin connector is used, please refer to Table 2-1b.for pin definitions. (Also see Figure B below for connector orientation). Refer to Table 2-1c for J24 (12V connctor).



(Figure A SSI 24-pin PS is used)



(Figure B ATX 20-pin PS is used)

Table 2-1a
ATX Power Supply 24-pin Connector
Pin Definitions (ATX POWER)

Pin Number	Definition	Pin Number	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON#	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res(NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

Table2-1b
ATX Power Supply 20-pin Connector

Pin Number	Definitio	Pin #	Definition
11	+3.3V	1	+3.3V
12	-12V	2	+3.3V
13	COM	3	COM
14	PS_ON	4	+5V
15	COM	5	COM
16	COM	6	+5V
17	COM	7	COM
18	-5V	8	PW-OK
19	+5V	9	5VSB
20	+5V	10	+12V

Table 2-1c
+12V PWR Supply
Connector
(J_)

Pins #	Definition
1 & 2	Ground
3 & 4	+12 V

Table 2-1d
WR Supply Color Definitior

Color	Definition
Orange	+3.3V
Black	Com
Red	5V
White	Power OK
Yellow	+12V
Purple	5V standby
Brown	-5V
(For Reference only)	

Infrared Connector

The infrared connector is located on pins 1-5 of JF1. See Table 2-2 for pin definitions. See the Technical Support section of our web page for information on the infrared devices you can connect to the system.

Table 2-2
Infrared Pin
Definitions
(JF1)

Pin Number	Definition
1	+5V
2	Key
3	IRRX
4	Ground
5	IRTX

PW_ON Connector

The PW_ON connector is located on pins 9 and 10 of JF1. Momentarily contacting both pins will power on/off the system. The user can also configure this button to function as a suspend button. (See the Power Button Mode setting in BIOS.) To turn off the power when set to suspend mode, hold down the power button for at least 4 seconds. See Table 2-3 for pin definitions.

Table 2-3
PW_ON Connector
Pin Definitions
(JF1)

Pin Number	Definition
9	PW_ON
10	Ground

Reset Connector

The reset connector is located on pins 12 and 13 of JF1. This connector attaches to the hardware reset switch on the computer case. See Table 2-4 for pin

Table 2-4
Reset Pin
Definitions
(JF1)

Pin Number	Definition
12	Ground
13	Reset

Hard Drive LED

The hard drive LED is located on pins 1 to 4 of JF2. Attach the hard drive LED cable to pins 1 and 2. See Table 2-5 for pin definitions.

Table 2-5
Hard Drive LED Pin
Definitions
(JF2)

Pin Number	Definition
1	+5V
2	HD Active
3	HD Active
4	+5V

Keylock/Power LED Connector

The keylock/power LED connector is located on pins 5 to 9 of JF2. See Table 2-6 for pin definitions.

Table 2-6
Keylock/Power LED Pin
Definitions (JF2)

Pin Number	Function	Definition
5	+5V	LED power
6	+5V	LED power or key
7	Ground	Black wire
8	keylock	Keyboard inhibit
9	Ground	Black wire

Speaker Connector

The speaker connector is located on pins 10 to 13 of JF2. See Table 2-7 for pin definitions.

(*Note: NC indicates no-connection.)

Table 2-7
Speaker Connector Pin
Definitions (JF2)

Pin Number	Function	Definition
10	SpeakerOut	Red wire, Speaker data
11	Key	Key
12	*NC	NC
13	Power	+5V

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse are located on J17. See Table 2-8 for pin definitions. (The mouse port is above the keyboard port. See Figure 2-3 for locations.)

Table 2-8
PS/2 Keyboard and Mouse Port Pin Definitions (J17)

Pin Number	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

Universal Serial Bus (USB)

Two Universal Serial Bus connectors (USB0 and USB1) are located on J18 and J19. See Table 2-9 for pin definitions. The P4STA also provides support for two additional USB ports: USB2 is a header located near the IDE connectors and provides easy front side chassis access (cable not included). USB3 is incorporated into the CNR slot - the CNR card you plug in here should have a USB port.

Table 2-9
Universal Serial Bus Pin Definitions

J18

Pin#	Definition
1	+5V
2	P0-
3	P0+
4	Ground

J19

Pin#	Definition
1	+5V
2	P0-
3	P0+
4	Ground

(J20)

Pin Number	Definition
1	+5V
2	PO-
3	PO+
4	Ground
5	Ground

Serial Ports

Two connectors, for the COM1 and COM2 serial ports, are provided on your board. See Table 2-10 for pin definitions.

Table 2-10
Serial Port Pin Definitions

Pin Number	Definition	Pin Number	Definition
1	DCD	6	DSR
2	Serial In	7	RTS
3	Serial Out	8	CTS
4	DTR	9	RI
5	Ground	10	NC*

Wake-On-LAN

The Wake-On-LAN header is located on WOL. Refer to Table 2-11 for pin definitions. You must enable the LAN Wake-Up setting in BIOS to use this function. (You must also have a LAN card with a Wake-on-LAN connector and cable to use this feature.)

Table 2-11
Wake-On-LAN Pin Definitions (WOL)

Pin Number	Definition
1	+5V Standby
2	Ground
3	Wake-up

(*Note: NC indicates no-connection.)

CD Headers

There are two CD headers of different sizes on the motherboard for audio CD playback. You must connect an audio cable from your CD player to the header that fits your cable's connector. Refer to Table 2-12 for pin definitions.

Table 2-12
Audio CD Header Pin Definitions (CD1)

Pin Number	Definition
1	Left Stereo Signal
2	Ground
3	Ground
4	Right Stereo Signal

Audio CD Header Pin Definitions (CD2)

Pin Number	Definition
1	Right Stereo Signal
2	Ground
3	left stero signal
4	Ground

Fan Headers*

The CPU Fan, chassis Fan and thermal control fan headers are designated CPU FAN, CH Fan1, CH Fan2, and OH Fan respectively. Refer to Table 2-13 for pin definitions.

Table 2-13
Fan Header Pin Definitions (CPU FAN,CH FAN 1/2, OH FAN)

Pin Number	Definition
1	Ground (black)
2	+12V (red)
3	Tachometer

* Caution: These fan headers are DC power.

Chassis Intrusion

The Chassis Intrusion header is located on JL1. See the board layouts in Chapter 1 for its location. See Table 2-14 for pin definitions.

Table 2-14
Chassis Intrusion Pin Definitions (JL1)

Pin Number	Definition
1	Intrusion Input
2	Ground

Overheat LED (JOH)

The JOH header is used to connect an LED to provide warning of chassis overheating. Refer to Table 2-15 for pin definitions.

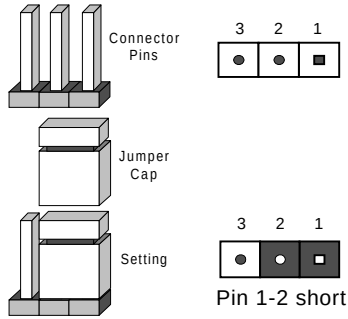
Table 2-15
Overheat LED Pin Definitions (JOH)

Pin Number	Definition
1	12VDC
2	OH Active

2-7 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.



Rambus Bus Speed

The Rambus speed is set with JP2 and JP2A1. Table 2-16 displays the settings for these two jumpers. The CPU speed can also be changed by software control in BIOS (see CPU Speed setting). The CPU Speed setting will show you the actual CPU speed for each FSB speed option selected.

Note: If the system does not reboot after changing the CPU speed, 1) clear CMOS and reboot (as described on the next page) and then set the correct CPU speed with the BIOS setting mentioned above.

Table 2-16
Front Side Bus Speed Jumper Settings
(JP2, JP2A1)

JP2	JP2A1	Rambus CLK
1-2	1-2	Auto
2-3	Open	300 MHz
Open	Open	400 MHz

*Note: The Auto setting allows the System to set the speed.

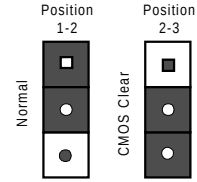
CMOS Clear

Refer to Table 2-17 for instructions on how to clear CMOS. Always remove the AC power cord from the system before clearing CMOS.

Note: For an ATX power supply, you must completely shut down the system, remove the AC power cord, then use JBT1 to clear CMOS. Replace JBT1 back to the pin 1-2 position before powering up the system again. Do not use the PW_ON connector to clear CMOS.

Table 2-17
CMOS Clear Jumper Settings (JBT1)

Jumper Position	Definition
1-2	Normal
2-3	CMOS Clear



AC'97 Enable/Disable

AC'97 brings high quality audio to PCs. When enabled with JP4, audio is processed onboard and the CNR slot will support modems only. The disabled setting should be selected when you wish to use an add-on card for audio either in the CNR or a PCI slot. See Table 2-18 for jumper settings.

Table 2-18
AC'97 Enable/Disable Jumper Settings (JP4)

Jumper Position	Definition
1-2	Enabled
2-3	Disabled

Wake-On-Ring

The Wake-On-Ring header is designated as JWOR on the P4STA. This function allows your computer to receive and be "woken up" by an incoming call when in the suspend state. Refer to Table 2-19 for pin definitions. You must also have a WOR card and cable to use WOR.

Table 2-19
Wake-On-Ring Pin Definitions (JWOR)

Pin Number	Definition
1	Ground
2	Wake-up

Keyboard Wake-Up

The JPWAKE jumper is used together with the Keyboard Wake-Up function in BIOS. Enable both the jumper and the BIOS setting to allow the system to be awakened up by depressing a key on the keyboard. See Table 2-20 for jumper settings. Your power supply must meet ATX specification 2.01 or higher and supply 720 mA of standby power to use this feature.

Table 2-20
Keyboard Wake-Up
Jumper Settings
(JPWAKE)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

2-8 Parallel Port, AGP and Floppy/Hard Disk Drive Connections

Use the following information to connect the floppy and hard disk drive cables.

- The floppy disk drive cable has seven twisted wires.
- A red mark on a wire typically designates the location of pin 1.
- A single floppy disk drive ribbon cable has 34 wires and two connectors to provide for two floppy disk drives. The connector with twisted wires always connects to drive A, and the connector that does not have twisted wires always connects to drive B.
- The 80-wire ATA66/100 IDE hard disk drive cable that came with your system has two connectors to support two drives. This special cable should be used to take advantage of the speed this new technology offers. The blue connector connects to the onboard IDE connector interface and the other connector(s) to your hard drive(s). Consult the documentation that came with your disk drive for details on actual jumper locations and settings for the hard disk drive.

Table 2-21
Parallel (Printer) Port Pin Definitions
(J15)

Pin Number	Function	Pin Number	Function
1	Strobe-	2	Auto Feed-
3	Data Bit 0	4	Error-
5	Data Bit 1	6	Init-
7	Data Bit 2	8	SLCT IN-
9	Data Bit 3	10	GND
11	Data Bit 4	12	GND
13	Data Bit 5	14	GND
15	Data Bit 6	16	GND
17	Data Bit 7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

Parallel Port Connector

The parallel port is located on J15. See Table 2-21 for pin definitions.

Floppy Connector

The floppy connector is located on JP5. See Table 2-22 for pin definitions.

Table 2-22
Floppy Connector Pin Definitions (JP5)

Pin Number	Function	Pin Number	Function
1	GND	2	FDHDIN
3	GND	4	Reserved
5	Key	6	FDEDIN
7	GND	8	Index-
9	GND	10	Motor Enable
11	GND	12	Drive Select B-
13	GND	14	Drive Select A-
15	GND	16	Motor Enable
17	GND	18	DIR-
19	GND	20	STEP-
21	GND	22	Write Data-
23	GND	24	Write Gate-
25	GND	26	Track 00-
27	GND	28	Write Protect-
29	GND	30	Read Data-
31	GND	32	Side 1 Select-
33	GND	34	Diskette

Table 2-23
IDE Connector Pin Definitions
(J6, J7)

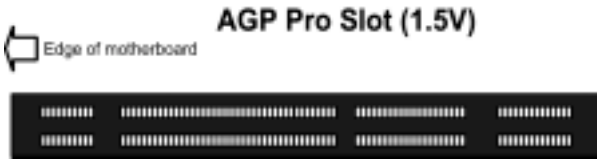
Pin Number	Function	Pin Number	Function
1	Reset IDE	2	GND
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	GND	20	Key
21	DRQ3	22	GND
23	I/O Write-	24	GND
25	I/O Read-	26	GND
27	IOCHRDY	28	BALE
29	DACK3-	30	GND
31	IRQ14	32	IOCS16-
33	Addr 1	34	GND
35	Addr 0	36	Addr 2
37	Chip Select 0	38	Chip Select 1-
39	Activity	40	GND

IDE Connectors

There are no jumpers to configure the onboard IDE interfaces J6 and J7. Refer to Table 2-23 for pin definitions. You must use the ATA100/66 cable included with your system to benefit from the ATA100/66 technology.

AGP Pro/4xAGP Slot (1.5V only)

The AGP Pro slot is backward compatible with AGP Pro and 4xAGP graphics cards, which have fewer pins than AGP Pro cards. Because of this, care must be taken when installing a graphics card into this slot, as doing so incorrectly can damage your motherboard. For AGP Pro cards, you should remove the orange sticker covering one end of the slot. For other cards, leave this sticker in place and make sure your card does not plug into the section it covers. A general rule of thumb is to make sure your card fills the center section of pins first, then the end toward the edge of the motherboard if there are more. If the I/O shield of your card is flush with the edge of the motherboard, the card should be inserted correctly.



2-9 Installing Software Drivers

After all the hardware has been installed, you must install, first of all, the operating system, and then, the software drivers. The necessary drivers are all included on the Supermicro CD that came packaged with your motherboard. After inserting this CD into your CDROM drive, the display shown in Figure 2-5 should appear. (If this display does not appear, click on the My Computer icon and then on the icon representing your CDROM

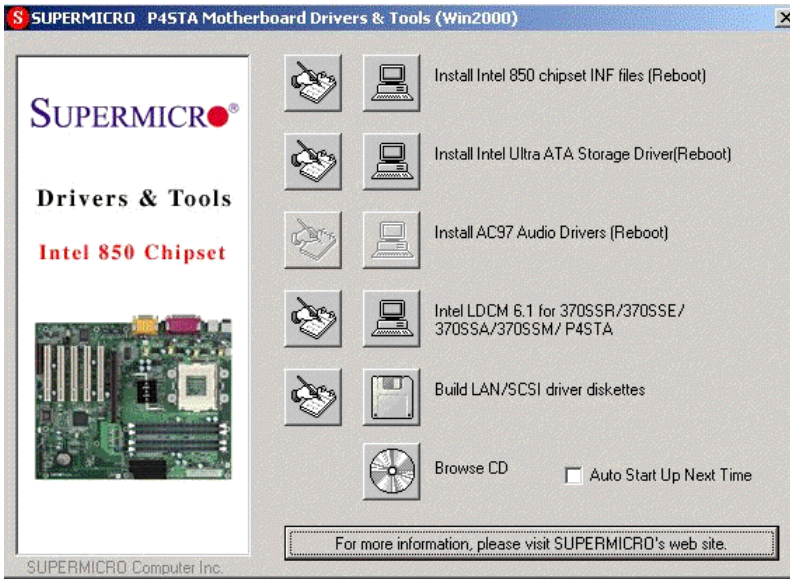

SUPERMICRO P4STA Motherboard Drivers & Tools (Win2000)
SUPERMICRO
Drivers & Tools
Intel 850 Chipset
SUPERMICRO Computer Inc.
Install Intel 850 chipset INF files (Reboot)
Install Intel Ultra ATA Storage Driver(Reboot)
Install AC97 Audio Drivers (Reboot)
Intel LDCM 6.1 for 370SSR/370SSE/ 370SSA/370SSM/ P4STA
Build LAN/SCSI driver diskettes
Browse CD
Auto Start Up Next Time
For more information, please visit SUPERMICRO's web site.

Figure 2-5. Driver/Tool Installation Display Screen

Click the icons showing a hand writing on paper to view the readme files for each item. Click the tabs to the right of these *in order from top to bottom* to install each item one at a time. **After installing each item, you must reboot the system before moving on to the next item on the list.** You should install everything here except for the SUPER Doctor utility, which is optional. The Security and Graphics Drivers support multiple languages. Click the arrows to pull down a menu of choices. The bottom icon with a CD on it allows you to view the entire contents of the CD.

Note: The memory size reported in the device manager may be less than expected because some is used by the onboard graphics. Higher screen resolutions will take up more of this memory.

NOTES

Chapter 3
Troubleshooting

3-1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. **Note: Always disconnect the power cord before adding, changing or installing any hardware components.**

Before Power On

1. Make sure no short circuits exist between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.
4. Install a CPU (making sure it is fully seated) and connect the chassis speaker and the power LED to the motherboard. (Check all jumper settings as well.)

No Power

1. Make sure no short circuits exist between the motherboard and the chassis.
2. Verify that all jumpers are set to their default positions.
3. Check that the 115V/230V switch on the power supply is properly set.
4. Turn the power switch on and off to test the system.
5. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on but you have no video, remove all the add-on cards and cables.
2. Use the speaker to determine if any beep codes exist. Refer to Appendix A for details on beep codes.

NOTE

If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended. For I/O port 80h codes, refer to App. B.

Memory Errors

1. Make sure the RIMM modules are properly and fully installed. Interleaved memory requires that modules must be installed in pairs (two slots at a time).
2. Determine if different speeds of RIMMs have been installed and verify that the BIOS setup is configured for the fastest speed of memory used. It is recommended to use the same memory speed for all RIMMs in the system.
3. Check for bad RIMM modules or slots by swapping modules between slots and noting the results.
4. Make sure all memory modules are fully seated in their slots.
5. Check the power supply voltage 115V/230V switch.

Losing the System's Setup Configuration

1. Check the setting of jumper JBT1. Ensure that you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.
3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

3-2 Technical Support Procedures

Before contacting Technical Support, please take the following steps. Also, note that as a motherboard manufacturer, Supermicro does not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our web site (http://www.supermicro.com/techsupport.htm) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our web site at http://www.supermicro.com/techsupport/download.htm.

Note: Not all BIOS can be flashed depending on the modifications to the boot block code.

3. If you still cannot resolve the problem, include the following information when contacting Supermicro for technical support:
   - Motherboard model and PCB revision number
   - BIOS release date/version (this can be seen on the initial display when your system first boots up)
   - System configuration

   An example of a Technical Support form is on our web site at http://www.supermicro.com/techsupport/contact_support.htm.
4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at support@supermicro.com or by fax at (408) 895-2012.

3-3 Frequently Asked Questions

Question: What are the various types of memory that the P4STA motherboard can support?

Answer: The P4STA has four 184-pin RIMM slots that support up to 2 GB MB. ECC memory and Parity Checking are supported. The 600/800 MHz memory bus fully supports both PC133 and PC100 memory.

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing problems with your system. Updated BIOS files are located on our web site at http://www.supermicro.com. Please check our BIOS warning message and the info on how to update your BIOS on our web site. Also, check the current BIOS revision and make sure it is newer than your BIOS before downloading. Select your motherboard model and download the BIOS file to your computer. Unzip the BIOS update file and you will find the readme.txt (flash instructions), the fwhflash.com (BIOS flash utility) and the BIOS image (xxxxxx.rom) files. Copy these files onto

a bootable floppy and reboot your system. It is not necessary to set BIOS boot block protection jumpers on the motherboard. At the DOS prompt, enter the command "fwhflash." This will start the flash utility and give you an opportunity to save your current BIOS image. Flash the boot block and enter the name of the update BIOS image file.

Note: It is important to save your current BIOS and **rename it "super.rom"** in case you need to recover from a failed BIOS update. Select flash boot block, then enter the update BIOS image. Select "Y" to start the BIOS flash procedure and do not disturb your system until the flash utility displays that the procedure is complete. After updating your BIOS, please clear the CMOS then load Optimal Values in the BIOS.

Question: After flashing the BIOS my system does not have video. How can I correct this?

Answer: If the system does not have video after flashing your new BIOS, it indicates that the flashing procedure failed. To remedy this, first clear CMOS per the instructions in this manual and retry the BIOS flashing procedure. If you still do not have video, please use the following **BIOS Recovery Procedure**. First, make sure the JPWAKE jumper is disabled. Then, turn your system off and place the floppy disk with the saved BIOS image file (see above FAQ) in drive A. Press and hold <CTRL> and <Home> at the same time, then turn on the power with these keys pressed until your floppy drive starts reading. Your screen will remain blank until the BIOS program is done. If the system reboots correctly, then the recovery was successful. The **BIOS Recovery Procedure** will not update the boot block in your BIOS.

Question: Do I need the CD that came with your motherboard?

Answer: The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include 850 chipset drivers for Windows and security and audio drivers.

Question: Why can't I turn off the power using the momentary power on/off switch?

Answer: The instant power off function is controlled in BIOS by the Power Button Mode setting. When the On/Off feature is enabled, the motherboard

will have instant off capabilities as long as the BIOS has control of the system. When the Standby or Suspend feature is enabled or when the BIOS is not in control such as during memory count (the first screen that

appears when the system is turned on), the momentary on/off switch must be held for more than four seconds to shut down the system. This feature is required to implement the ACPI features on the motherboard.

Question: I see some of my PCI devices sharing IRQs, but the system seems to be fine. Is this correct or not?

Answer: Some PCI Bus Mastering devices can share IRQs without performance penalties. These devices are designed to work correctly while sharing IRQs. See Table 3-1 below for details on shared IRQs.

Table 3-1. Shared IRQs

P4STA

PCI 1 shares an IRQ with PCI 5 and the AGP Pro slot
PCI 2 shares an IRQ with onboard audio and SM bus*
PCI 3 has a dedicated IRQ (does not share)
PCI 4 shares one IRQ with USB

(*System Management Bus)

Question: I installed my microphone correctly but I can't record any sound. What should I do?

Answer: Go to <Start>, <Programs>, <Accessories>, <Entertainment> and then <Volume Control>. Under the Properties tab, scroll down the list of devices in the menu and check the box beside "Microphone".

Question: How do I connect the ATA66/100 cable to my IDE device(s)?

Answer: The 80-wire/40-pin ATA66/100 IDE cable that came with your system has two connectors to support two drives. This special cable must be used to take advantage of the speed the ATA66/100 technology offers. Connect the blue connector to the onboard IDE header and the other connector(s) to your hard drive(s). Consult the documentation that came with your disk drive for details on actual jumper locations and settings.

3-4 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Chapter 4
BIOS

4-1 Introduction

This chapter describes the Award BIOS for the P4STA. The Award ROM BIOS is stored in a Flash chip and can be easily upgraded using a floppy disk-based program.

Note: Due to periodic changes to the BIOS, some settings may have been added or deleted and might not yet be recorded in this manual. Refer to the Manual Download area of our web site for any changes to BIOS that are not reflected in this manual.

System BIOS

The BIOS is the Basic Input Output System used in all IBM® PC, XT™, AT®, and PS/2® compatible computers. The AwardBIOS Flash chip stores the system parameters, such as amount of memory, type of disk drives and video displays, etc. CMOS requires very little power. When the computer is turned off, a back-up battery provides power to the BIOS Flash chip, enabling it to retain the system parameters. Each time the computer is powered-on, the computer is then configured with the values stored in the BIOS ROM by the system BIOS, which gains control when the computer is powered on.

How To Change the Configuration Data

The CMOS information that determines the system parameters may be changed by entering the BIOS Setup utility. This Setup utility can be accessed by pressing <Del> at the appropriate time during system boot.

Starting the Setup Utility

Normally, the only visible POST (Power On Self Test) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the BIOS Setup utility. From the main menu, you can access the other setup screens, such as the Chipset and Power menus. Section 4-3 gives detailed descriptions of each parameter setting in the Setup utility.

4-2 Running Setup

Optimal default settings are in bold text unless otherwise noted.

The BIOS setup options described in this section are selected by choosing the appropriate text from the Main BIOS Setup screen. All displayed text is described in this section, although the screen display is often all you need to understand how to set the options (see on next page).

when you first power on the computer, the AwardBIOS™ is immediately activated.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing <Del> immediately after turning the system on, or
2. When the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test), press the <Del> key to activate the Main Setup Menu.

Press DEL to enter SETUP

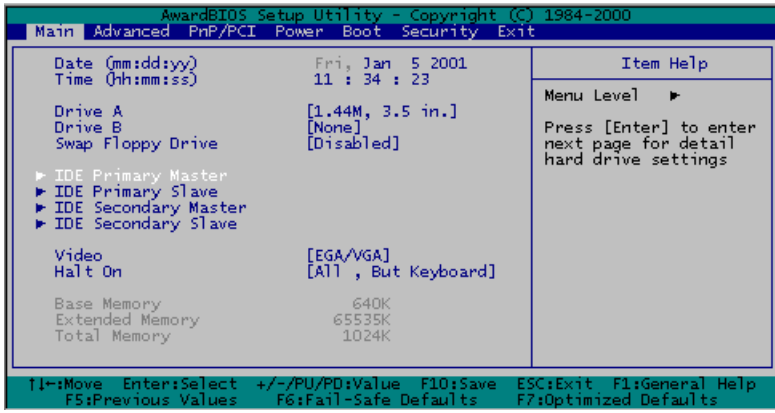
4-3 Main BIOS Setup

All Main Setup options are described in this section. The Main BIOS Setup screeen is displayed below.

Use the Up/Down arrow keys or the <Tab> key to move between the different settings in the above menu.

Press the <ESC> key to exit theCMOS Setup Menu and use the Left/Right arrow keys to enter the the other categories of BIOS settings. The next section is described in detail to illustrate how to navigate through the menus.

Main BIOS Setup Menu


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Date (mm:dd:yy) Fri, Jan 5 2001
Time (hh:mm:ss) 11 : 34 : 23
Drive A [1.44M, 3.5 in.]
Drive B [None]
Swap Floppy Drive [Disabled]
IDE Primary Master
IDE Primary Slave
IDE Secondary Master
IDE Secondary Slave
Video [EGA/VGA]
Halt On [All , But Keyboard]
Base Memory 640K
Extended Memory 65535K
Total Memory 1024K
Item Help
Menu Level ▶
Press [Enter] to enter next page for detail hard drive settings
↑↓←→:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Main Setup Features

[Date/Time]

Set the system date and time. Key in the correct information in the fields when the options of "Month, DD, YYYY" and "HH:MM:SS" appear in the screen. Press the "Enter" key to save the data.

[Drive A/Drive B]

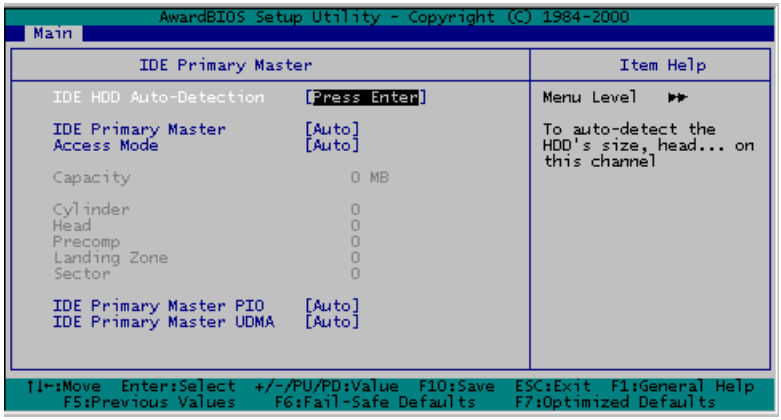
These options allow the user to set the type of floppy disk drive installed in the system. The settings are: None, 360K, 5.25in, 1.2M, 5.25in, 720K, 3.5in, 1.44M, 3.5in, 2.88M, 3.5in.

[Swap Floppy Drive]

These options allow the user to swap the names of floppy disk drives installed in the system, if there are two floppy disk drives installed on the main board. The settings are: Disabled and Enabled. The default setting is "Disabled".

[IDE Primary Master/IDE Primary Slave/IDE Secondary Master/IDE Secondary Slave]

These options allow the user to set the parameters of the IDE Primary Master/Slave and IDE Secondary Master/Slave slots. Hit "Enter" to activate the following sub-menu screen for detailed options of these items. Set the correct configurations accordingly. The items included in the sub-menu are listed below:



[IDE HDD Auto-Detection]

Press the <Enter> key to activate the function of "IDE HDD Auto-Detection" to automatically detect the status of the IDE HDD installed in the system, such as the sizes of the Hard drives.

[IDE Primary Master PIO]

The IDE PIO (Programmed Input/Output) field allows you to set a PIO mode (0-4) for the IDE Primary device: Mode 0 through Mode 4, with each increase in number indicates increase in performance, correspondently. The settings are "Auto", "Mode 0", "Mode 1", "Mode 2", "Mode 3", and "Mode 4". The default setting is "Auto".

[Access Mode]

The settings are "CHS", "LBA", "Large", "Auto". The default setting is "Auto".

[IDE Primary Master UDMA]

This option is available only when your IDE hard drive supports Ultra DMA/33 and the operating environment also includes a DMA drive (Windows 95 OSR2 or a third-party IDE bus master driver). If your IDE hard drive and your system software both support Ultra DMA/33, select "Auto" to enable BIOS support. The settings are "Auto", and "Disabled". The default setting is "Auto".

[Video]

This option allows the user to select the setting for the default video device. The settings are EGA/VGA, CGA 40, CGA 80, and MONO. The default setting is "EGA/VGA"

[HaltOn]

This option allows the user to select the situation in which you want the BIOS to stop the POST process and notify you about the status of the system. The settings are All Errors, No Errors, All, but Keyboard, All, but Diskette, All, but Disk/Key. The default setting is "All, but Keyboard".

[Base Memory]

This feature displays the amount of conventional memory detected during boot-up. The default setting for this option is "NA".

[Extended Memory]

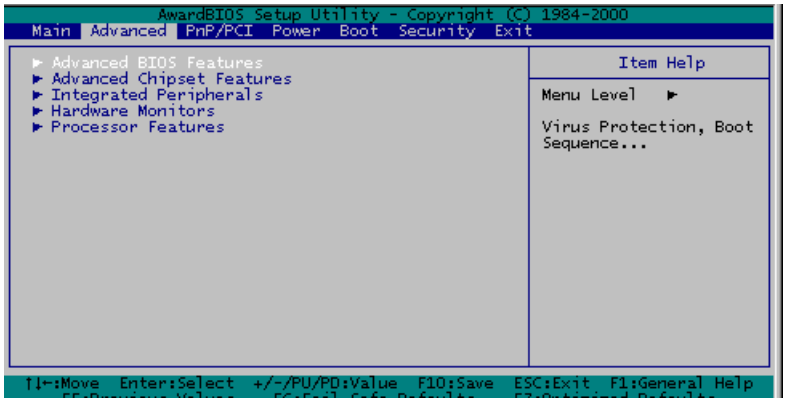
This feature displays the amount of extended memory detected during boot-up. The default setting for this option is NA.

[Total Memory]

This feature displays the amount of total memory available in the system The default setting for this option is NA.

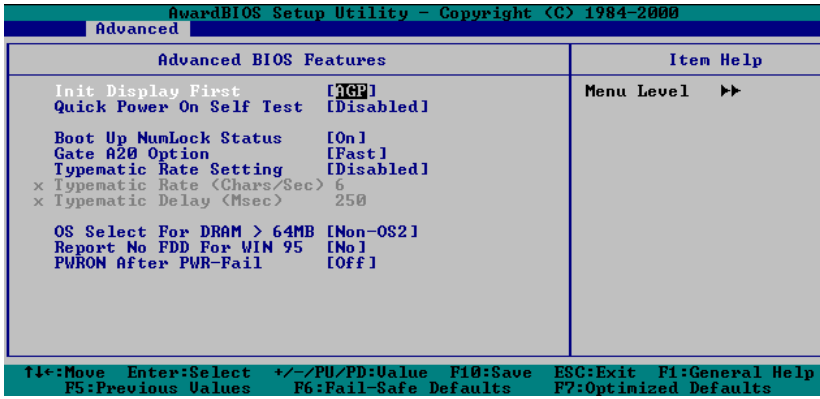
4-4 Advanced BIOS Setup

Choose Advanced BIOS Setup from the Award BIOS Setup Utility main menu with the Left/Right arrow keys. You should see the following display. Select one of the items in the left frame of the screen to go to the sub screen for that item. Advanced BIOS Setup options are displayed by highlighting the option using the arrow keys. All Advanced BIOS Setup options are described in this section.



4-4.1 Advanced BIOS Features

When the item of Advanced BIOS Features is highlighted, hit the <Enter> key to activate the screen below:


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Advanced
Advanced BIOS Features
Item Help
Init Display First [AGP]
Quick Power On Self Test [Disabled]
Boot Up NumLock Status [On]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
x Typematic Rate (Chars/Sec) 6
x Typematic Delay (Msec) 250
OS Select For DRAM > 64MB [Non-OS2]
Report No FDD For WIN 95 [No]
PWRON After PWR-Fail [Off]
Menu Level ▸▸
↑↓←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

[Init Display First]

This option allows the user to determine which device will be first displayed when the sytem boots up--the device installed in the PCI slot or the device intalled in the AGP slot? The settings are "PCI slot" and "AGP". The default setting is AGP.

[Quick Power-On Self Test]

If enabled, this feature will speed up the process of POST (Power On Self Test) after the computer is switched on. The settings are "Enabled" and "Disabled". If "disabled", the process of POST will remain in the normal speed. The default setting is "Disabled".

[Boot Up NumLock Status]

This option enables the system to check the Status of the NumLock key during boot-up. The settings are "On" and "Off". The default setting is "On".

[Gate A20 Option]

This option allows the user to determine if the chipset or the keyboard controller should have the control over Gate A20. The settings are "Normal" or "Fast". If set to "Normal", a pin in the keyboard controller controls Gate A20. If "Fast" is selected, the chipset will have the control over Gate A20. The default setting is "Fast".

[Typematic Rate Setting]

Key strokes repeat at a rate pre-determined by the keyboard controller. The key stroke repeating rate is called the Typematic rate. If "enabled", this option allows the user to set the Typematic Rate of the system. If "Disabled", the user will not be allowed to set the Typematic rate and the following two items-Typematic Rate and Typematic Delay will not be displayed. The settings are "Enabled" and "Disabled". The default setting is "Disabled".

[Typematic Rate (Chars/Sec)]

If enabled, the option allows the user to set the number of times a key stroke repeats itself in a second when the key is held down. The settings are: "6", "8", "10", "12", "15", "20", "24", and "30". The default setting is "6".

[Typematic Delay]

The option sets the delay time after a key is held down before it begins to repeat the keystroke. The settings are: "250", "500", "750", "1000". The default setting is "250".

[OS Select For DRAM> 64MB]

The option allows the user to select the operating system that requires a DRAM memory greater than 64MB in order to function properly. The settings are "OS2", and "Non OS2". The default setting is "Non OS2".

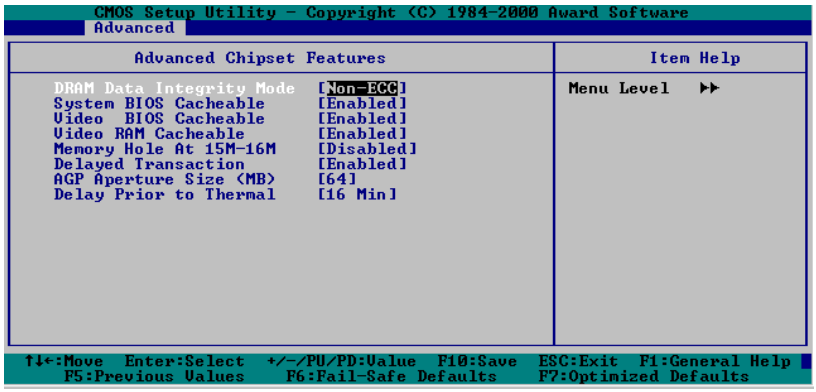
[Power On after Power Fail]

This option allows the user to determine if the system's power will be automatically turned on or remains "off" after a power failure. The settings are "On", "Off" and "Former Status". The default setting is "Off".

4-4.2 Advanced Chipset Features

This section documents the functionality the AwardBIOS provides to the user in configuring the system based upon the special features offered by the chipset installed in the motherboard--Intel's 850 chipset. The 850 chipset manages the operations of major components of the board--such as the bus speed of the CPU, the access to the memory and the communication between the PCI slots and the CPU. Normally, the default settings for the Advanced Chipset Features listed in the section are pre-configured by the manufacturer for the optimal performance of the system. It is not recommended for the user to alter the default settings. This section is provided as an emergency measure for the user to restore the functions of the system when the critical data stored in the BIOS is lost.

When the item of Advanced Chipset Features is highlighted, hit the <Enter> key to activate the screen below:


CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Advanced
Advanced Chipset Features
Item Help
DRAM Data Integrity Mode [Non-ECC]
System BIOS Cacheable [Enabled]
Video BIOS Cacheable [Enabled]
Video RAM Cacheable [Enabled]
Memory Hole At 15M-16M [Disabled]
Delayed Transaction [Enabled]
AGP Aperture Size (MB) [64]
Delay Prior to Thermal [16 Min]
Menu Level ▸▸
↑↓←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

[DRAM Data Integrity Mode]

This item regulates CPU's access to the data stored in the protected area of dynamic random access memory (DRAM) on the motherboard. To preserve its integrity, critical information of the system is usually stored in a protected area of memory. If set to the "ECC" mode, the CPU will have the access to data stored in the area when performing ECC (Error Correction/ Checking) activities. The settings are "ECC" and "Non-ECC". The default setting for this item is "Non-ECC".

[System BIOS Cacheable]

If enabled, the system BIOS information stored in the BIOS ROM (Read Only Memory) chip will be written and temporarily stored in the "cacheable" memory section of the CPU, so the CPU has faster access to the information. The settings are: "Enabled" or "Disabled". The default setting is "Enabled".

[Video BIOS Cacheable]

If enabled, the information regarding the Video BIOS stored in the BIOS ROM (Read Only Memory) chip will be written and temporarily stored in the "cacheable" memory section of the CPU to allow the CPU to have faster access to the information. The settings are: "Enabled" or "Disabled". The default setting is "Enabled".

[Video RAM Cacheable]

If enabled, the information regarding the Video card stored in the RAM chip (Randon Access Memory) will be written and temporarily stored in the "cacheable" memory section of the CPU to allow the CPU to have faster access to the information. The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[Memory Hole at 15M-16M]

To improve the performance of the sytem, a certain section of the memory will be reserved for the use of the devices installed in the PCI slots. This section of memory must be mapped into the memory space below 16MB. The settings are: "15M-16M" or "Disabled". The default setting is "15M16M".

[Delayed Transition]

If enabled, the information regarding Video BIOS stored in the BIOS ROM (Read Only Memory) chip will be written and temporarily stored in the "cacheable" memory section of the CPU, so the CPU has faster access to the information. The settings are: "Enabled" or "Disabled". The default setting is "Enabled".

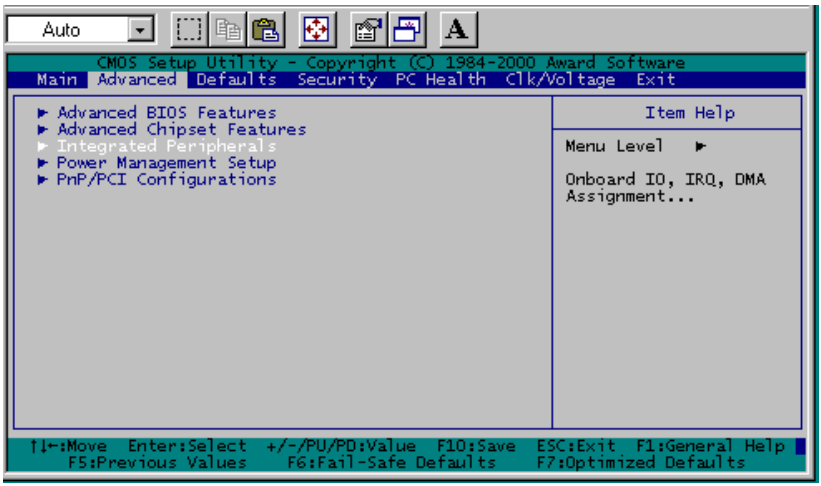
[AGP Aperture Size <MB>]

This option allows the user to set the Aperture size of Accelerated Graphics Port (AGP). The settings are: "4M", "8M", "16M", "32M", "65M", "128M", and "256M". The default setting is "64MB".

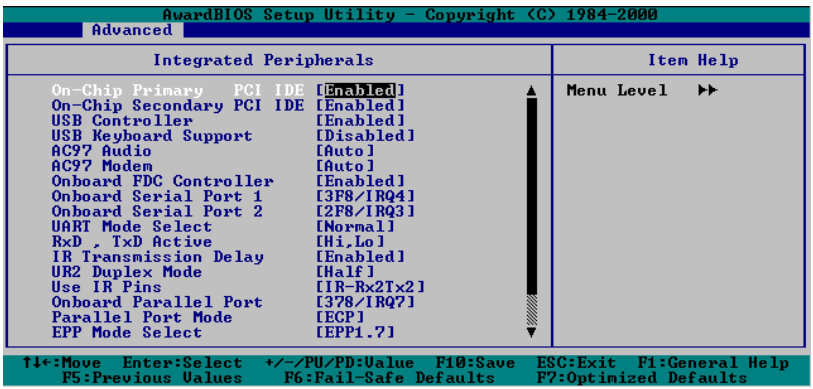
[Delay Prior to Thermal]

If enabled, the information regarding theVideo BIOS stored in the BIOS ROM (Read Only Memory) chip will be written and temporarily stored in the "cacheable" memory section of the CPU, so the CPU has faster access to the information. The settings are: "Enabled" or "Disabled". The default setting is "Enabled".

4-4.3 Integrated Peripherals


Auto
CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Main Advanced Defaults Security PC Health Clk/Voltage Exit
Advanced BIOS Features
Advanced Chipset Features
Integrated Peripherals
Power Management Setup
PnP/PCI Configurations
Item Help
Menu Level ▶
Onboard IO, IRQ, DMA Assignment...
↑↓←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

When the item "Integrated Peripherals" is highlighted, hit the <Enter> key to activate the following sub-menu screen.


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Advanced
Integrated Peripherals
On-Chip Primary PCI IDE [Enabled]
On-Chip Secondary PCI IDE [Enabled]
USB Controller [Enabled]
USB Keyboard Support [Disabled]
AC97 Audio [Auto]
AC97 Modem [Auto]
Onboard FDC Controller [Enabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
UART Mode Select [Normal]
RxD , TxD Active [Hi,Lo]
IR Transmission Delay [Enabled]
UR2 Duplex Mode [Half]
Use IR Pins [IR-Rx2Tx2]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [ECP]
EPP Mode Select [EPP1.7]
Item Help
Menu Level ▶▶
↑↓←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

[On-Chip Primary PCI IDE]

The Intel 850 Chip contains a PCI IDE controller which supports two IDE channels. Set this option to "Enabled" to activate the Primary PCI IDE interface. The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[On-Chip Secondary PCI IDE]

The Intel 850 Chip contains a PCI IDE controller which supports two IDE channels. Set this option to "Enabled" to activate the Secondary PCI IDE interface. If enabled, The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[USB Controller]

If set to "Enabled", the BIOS support for the USB Controller will be activated. The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[USB Keyboard Controller]

If set to "Enabled", the BIOS support for the USB Keyboard Controller will be activated. The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[AC 97 Audio]

This option allows the user to activate the BIOS support for the AC97 Audio. The settings are "Auto" and "Disabled". The default setting is "Auto".

[AC 97 Modem]

This option allows the user to activate the BIOS support for the AC97 Modem. The settings are "Auto" and "Disabled". The default setting is "Auto".

[Onboard FDC controller]

Select "Enabled", if your system has a floppy disk controller (FDC) installed on the main board and you wish to use it. The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[Onboard Serial Port 1/Port 2]

This option allows the user to set the address and the corresponding IRQ for the Serial Port1 and Serial Port 2. The settings are "Disabled" , "3F8/ IRQ4", "2F8/IRQ3", "3E8/IRQ4", "2E8/IRQ3", and "Auto ". The default setting for Serial Port1 is "3F8/IRQ4" and the defualt for Port 2 is is "2F8/IRQ3".

[UART Mode Select]

This option allows the user to select the UART mode for BIOS. The settings are "IrDA", "ASKIR", and "Normal". The default setting is "Normal".

[RxD, TxD Active]

This option allows the user to set the settings for the function of RxD, TxD Active. The settings are "Hi, Hi", "Hi, Lo", "Lo, Hi", and "Lo, Lo". The default setting is "Hi, Lo".

[IR Transmission Delay]

If "Enabled", the transmssion of IR (-Infra Red) Signals will be delayed. The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[UR2 Duplex Mode]

The option set the mode for the UR2 Duplex Mode. The settings are "Full" and "Half". The default setting is "Half".

[Use IR Pins]

This item sets the mode for Use IR Pins. The settings are "RxD2, TxD2" and "IR-Rx2Tx2". The default setting is "IR-Rx2Tx2".

[Onboard Parallel Port]

This option allows the user to set the address and the corresponding IRQ for the onboard Parallel port. The settings are "Disabled" , "378/IRQ7", "278/IRQ5", and "3BC/IRQ7". The default setting for the Parallel Port1 is "378/IRQ7".

[Parallel Port Mode]

This option set the mode for the onboard Parallel port. The settings are "SPP" , "EPP", "ECP", and "ECP+EPP". The default setting is "ECP".

[EPP Mode Select]

This option allows the user to select the EPP mode. The settings are "EPP 1.9" and "EPP 1.7". The default setting is "EPP 1.7 ".

[ECP Mode Use DMA]

This option allows the user to select the ECP use DMA mode. The settings are "1" and "3". The default setting is "3 ".

[Game Port Address]

This option allows the user to set the Game Port address. The settings are "Disabled", "201" and "209". The default setting is "201 ".

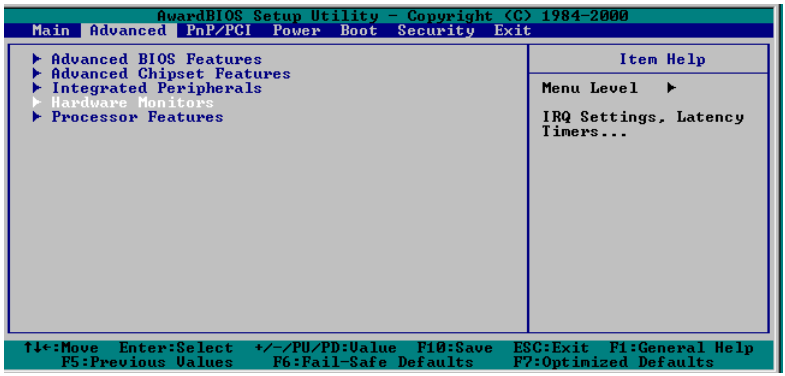
[Midi Port Address]

This option allows the user to set the Midi Port address. The settings are "Disabled", "330", "300", and "290". The default setting is "330".

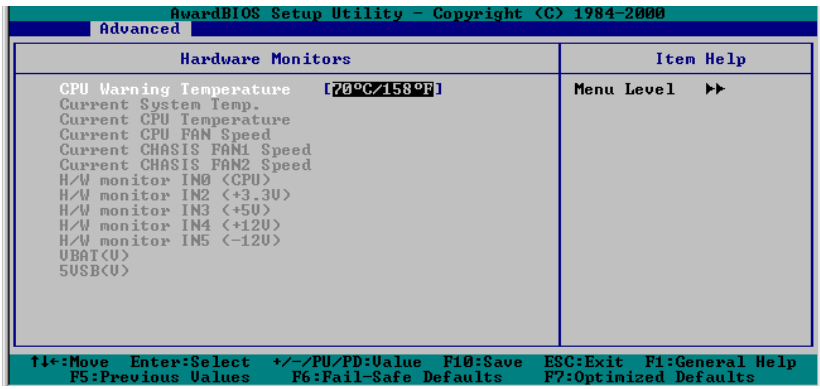
[Midi Port IRQ]

This option allows the user to set the Midi Port IRQ. The settings are "5", and "10". The default setting is "10".

4-4.4 Hardware Monitors


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Advanced BIOS Features
Advanced Chipset Features
Integrated Peripherals
Hardware Monitors
Processor Features
Item Help
Menu Level ▶
IRQ Settings, Latency Timers...
↑↓←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

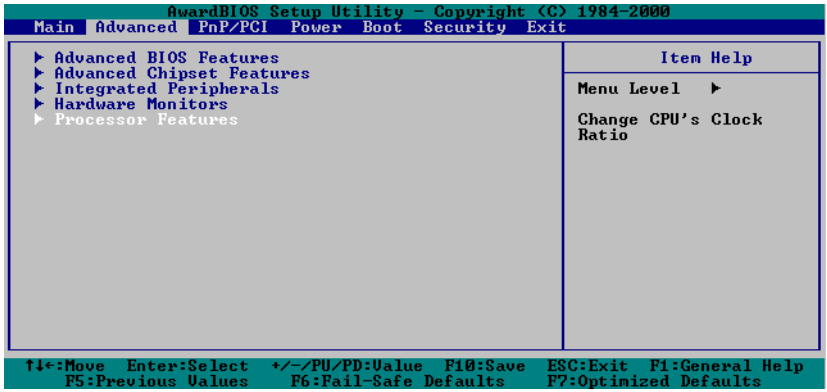
When the item "Hardware Monitors" is highlighted, hit the <Enter> key to activate the sub-menu of "Hardware Monitors". The "Hardware Monitors" sub-menu screen is listed bellow:



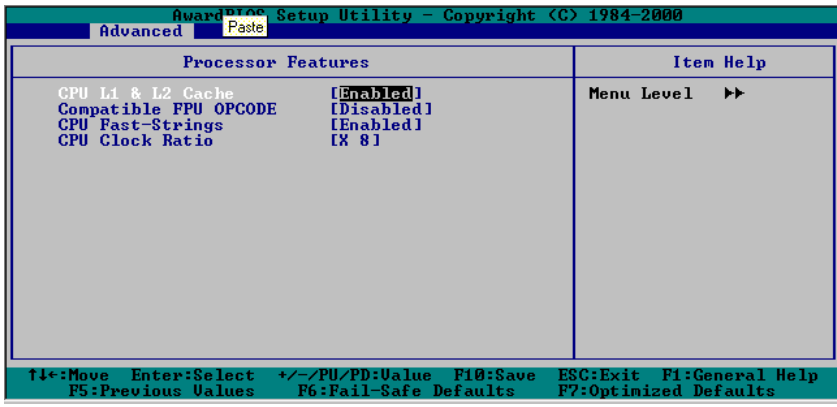
[CPU Warning Temperatures]

This item allows the user to set the CPU temperature threshold. When the CPU temperature reaches the threshold temperature set by the user, the alarm will be set off and a warning message will be displayed on the screen. The settings are "Disabled", "50°C/122°F", "60°C/140°F", "65°C/151°F" and "70°C/158°F". The default setting is"70°C/158°F".

4-4.5 Processor Features


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Advanced BIOS Features
Advanced Chipset Features
Integrated Peripherals
Hardware Monitors
Processor Features
Item Help
Menu Level ▶
Change CPU's Clock Ratio
↑↓←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

When the item "Processor Features" is highlighted, hit the <Enter> key to activate the sub-menu of "Processor Features" listed below:



[CPU L1 & L2 Cache]

Set this option to "Enable" to activate the function of CPU L1 and L2 cache. The settings are "Disabled", and "Enabled". The default setting is "Enabled".

Compitable FPU OPCODE]

The settings are "Disabled", and "Enabled". The default setting is "Disabled".

[CPU Fast-String]

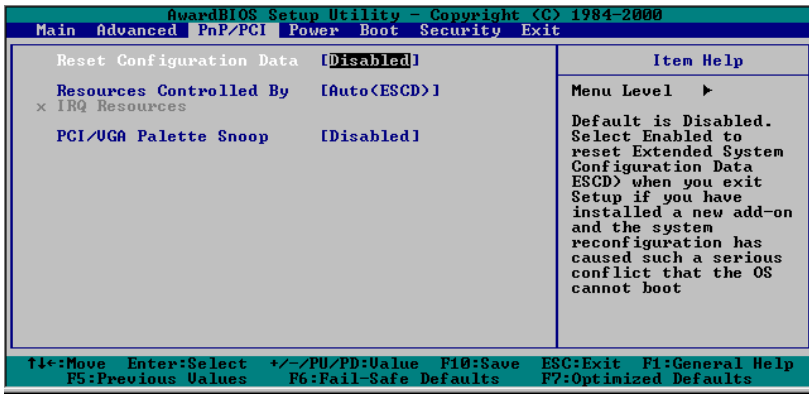
Set this option to "Enable" to activate the function of CPU Fast-String. The settings are "Disabled", and "Enabled". The default setting is "Enabled".

[CPU Clock Ratio]

This option allows the user to set the CPU Clock Ratio. The settings are "x8", "x9", "x10".....to "x23". The default setting is "x8".

4-5 PCI/PnP Configurations

When the Item "PCI/PnP" is highlighted on the main menu bar, hit the <Enter> key to activate the following screen:


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
x IRQ Resources
PCI/VGA Palette Snoop [Disabled]
Item Help
Menu Level ▶
Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
↑↓←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

[Reset Configuration Data]

If you have installed a new add-on device and this add-on device has caused conflicts in system configuration and has resulted in system boot-upfailure, then, select "Enabled" to reset "Extended System Configuration Data" (ESCD) for the OS to reboot the system, The settings are "Enabled" and "Disabled". The default setting is"Disabled".

[Resources Controlled By]

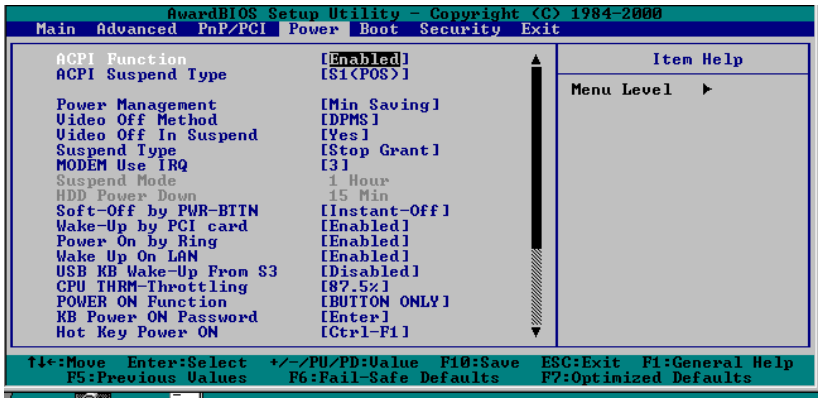
The Award BIOS can automatically configure all the boot devices and all Plug and Play compatible devices. However, if this item is set to "Auto (ESCD)", the user is not able to set the IRQ DMA and memory address, since the Award BIOS will automatically assign the values to these fields. The settings are "AUTO (ESCD)" and "Manual". The default setting is "AUTO (ESCD)".

[PCI/VGA Palette Snoop]

For best performance of the system, this item has been pre-set to "Disabled" by the manufacturer. The settings are "Enabled" and "Disabled". The default setting is"Disabled".

4-6 Power Management

When the Item "Power" is highlighted on the main menu bar, hit the <Enter> key to activate the following screen:


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
ACPI Function [Enabled]
ACPI Suspend Type [S1(POS)]
Power Management [Min Saving]
Video Off Method [DPMS]
Video Off In Suspend [Yes]
Suspend Type [Stop Grant]
MODEM Use IRQ [3]
Suspend Mode 1 Hour
HDD Power Down 15 Min
Soft-Off by PWR-BTTN [Instant-Off]
Wake-Up by PCI card [Enabled]
Power On by Ring [Enabled]
Wake Up On LAN [Enabled]
USB KB Wake-Up From S3 [Disabled]
CPU THRM-Throttling [87.5%]
POWER ON Function [BUTTON ONLY]
KB Power ON Password [Enter]
Hot Key Power ON [Ctrl-F1]
Item Help
Menu Level ▶
↑↓←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

[ACPI Function]

This item allows you to enable and disable the function of Advanced Configuration and Power Management. The settings are "Enabled", and "Disabled". The default setting is "Enabled".

[ACPI Suspend Type]

This item allows the user to determine the ACPI Suspend type. The settings are "S1 (POS)", and "S3 (STR)". The default setting is "S1 (POS)".

[Power Management]

This option sets the degree of power saving for the system, especially for HDD Power Down, Doze Mode and Suspesnd Mode. The settings are "User Define", "Min Saving", and "Max. Saving". The default setting is "Min Saving".

[Video Off Method]

This item determines the manner in which the monitor is turned off. The settings are "Blank Screen", "V/H SYNC+Blank", and "DPMS". Select the "V/H SYNC+Blank" to turn off the vertical and horizontal synchronization ports and the monitor. Select "Blank Screen" to turn off the video buffer and the monitor. Select "DPMS" to initiate display power management signals. The default setting is "DPMS".

[Video Off In Suspend]

Select "Yes" to turn off the Video and the monitor when the system is in the Suspend Mode. If set to "No", the Video and the monitor will not be turned off when the system is in the Suspend Mode. The settings are "No" and "Yes". The default setting "Yes".

[Suspend Type]

This item sets the system suspend type. The settings are "Stop Grant" and "PwrOn Suspend". The default setting is "Stop Grant".

[Modem Use IRQ]

This item allows the user to determine the IRQ that the modem will use. The settings are "NA", "3", "4", "5", "7", "9","10", and "11".The default setting is "3".

[Soft-off by PWR-BTTN]

This item determines the system's "Soft-off" mode when the user presses the power-button. The settings are "Instant-off" and "Delay 4 Sec". The default setting is "Instant-off".

[Wake-Up by PCI Card]

If "Enabled", the user is able to "wake up" the system by using a PCI card. The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[Power On by Ring]

If "Enabled", the user is able to "power on" the system by using a modem. The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[Wake-Up On LAN]

If "Enabled", the user is able to "wake up" the system via LAN (Local Area Network). The settings are "Enabled" and "Disabled". The default setting is "Enabled".

[USB KB Wake-Up from S3]

If "Enabled", the user is able to "wake up" the USB keyboard from S3. The settings are "Enabled" and "Disabled". The default setting is "Disabled".

[CPU THRM-Throttling]

THRM throttling is used to lower power consumption and reduce the heat gererated by the CPU. The settings are "87.5%", "75.0%", "62.5%", "50%", "37.5%", "25.5%", and "12.5%". The default setting is"87.5%

[Primary/Secondary IDE 0]

If "Enabled", the functions of Primary IDE 0 or Secondary IDE 0 will be activated. The settings are "Enabled" and "Disabled". The default setting is "Disabled".

[Power On Function]

The option allows the user to determine the method by which the system activates the power on function. The settings are "Password", "Hot Key", "Mouse Left", "Mouth Right", "Any key", "Button Only", and "Keyboard 98". The default setting is "Button Only".

[KB Power On Password]

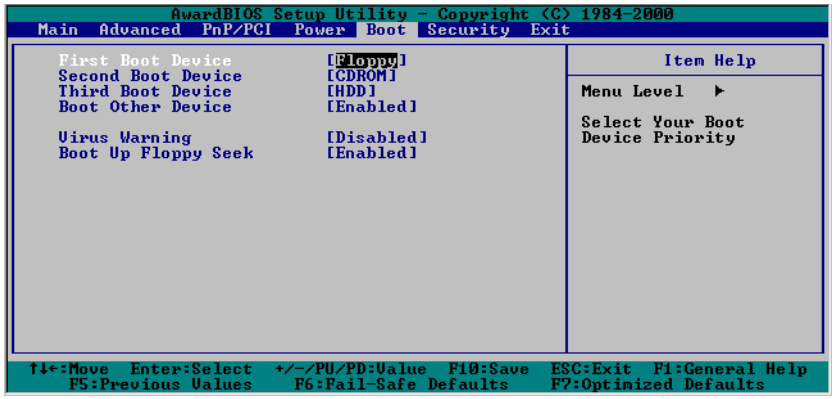
This item allows the user to set the password to activate the power on function through keyboard. Press the <Enter> key to enter the password.

[Hot Key Power On]

This option allows the user to set the hot key to activate the power on function. The settings are "Ctrl F1", "Ctrl F2", "Ctrl F3", "Ctrl F4", "Ctrl F5", "Ctrl F6", "Ctrl F7", "Ctrl F8", "Ctrl F9","Ctrl F10", "Ctrl F11", and "Ctrl F12". The default setting is "Ctrl F1".

4-7 Boot-up Devices

When the Item "Boot" is highlighted on the main menu bar, hit the <Enter> key to activate the following screen:


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
First Boot Device [Floppy]
Second Boot Device [CDROM]
Third Boot Device [HDD]
Boot Other Device [Enabled]
Virus Warning [Disabled]
Boot Up Floppy Seek [Enabled]
Item Help
Menu Level ▶
Select Your Boot Device Priority
↑↓←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Award BIOS attempts to load the operating system from devices specified by the users in a user-specified sequence.

[First Boot Device]

This item allows the user to set the device as the first boot-up device. The settings are "Floppy", "LS120", ""HDD", "SCSI", "CDROM","ZIP100", "LAN", and "Disabled". The default setting is "Floppy".

[Second Boot Device]

This item allows the user to set the device as the second boot-up device. The settings are "Floppy", "LS120", ""HDD", "SCSI", "CDROM","ZIP100", "LAN", and "Disabled". The default setting is "CDROM".

[Third Boot Device]

This item allows the user to set the device as the third boot-up device. The settings are "Floppy", "LS120", ""HDD", "SCSI", "CDROM","ZIP100", "LAN", and "Disabled". The default setting is "HDD".

[Boot Other Device]

If enabled, this option enables the BIOS to load the OS from another device rather than the ones that have been specified as the first, second, and third boot up devices. The settings are "Enabled", and "Disabled". The default setting is "Enabled".

[Virus Warning]

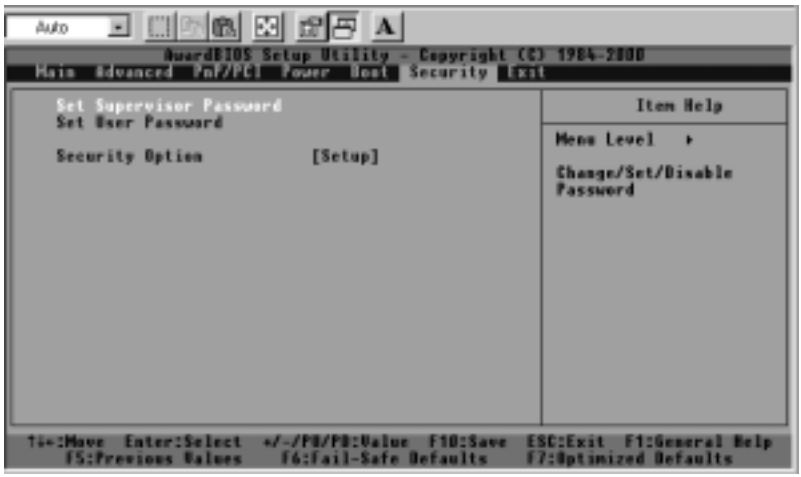
This item allows the user to choose the VIRUS Warning feature for the IDE Hard Drive Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, then, the BIOS will display a warning message and the alarm will be set off. The settings are "Enabled", and "Disabled". The default setting is "Disabled".

[Boot Up Floppy Seek]

Set this option to "Enabled" to allow the BIOS to test floppy drives to determine whether they have 40 tracks or 80 tracks. The settings are "Enabled" or "Disabled". The default setting is "Enabled".

4-8 Security Setup

When the Item "Security" is highlighted on the main menu bar, hit the <Enter> key to activate the following screen:


Auto
AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Set Supervisor Password
Set User Password
Security Option [Setup]
Item Help
Menu Level ▸
Change/Set/Disable Password
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

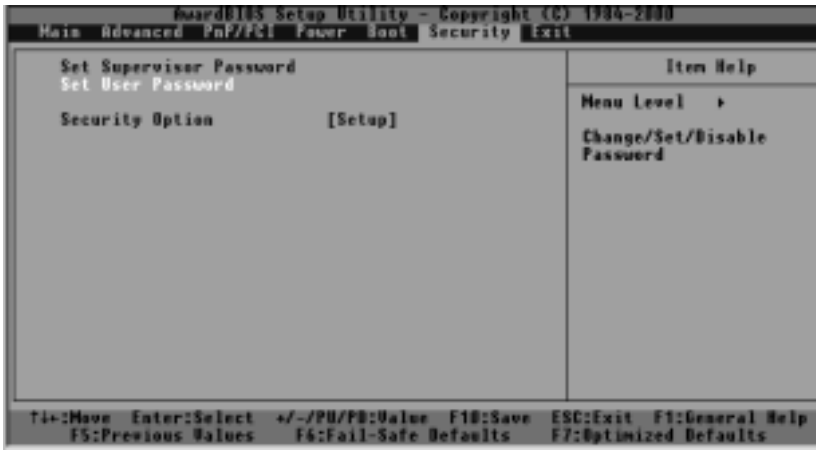
[Set Supervisor's Password]

When the item "Set Supervisor Password" is highlighted on the above screen, hit the <Enter> key to activate the following screen. When prompted, type in Supervisor's password in the dialogue box to set or to change Supervisor's Password.

AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Set Supervisor Password
Set User Password
Security Option [Setup]
Item Help
Menu Level ▸
Change/Set/Disable Password
Enter Password:
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

[Set User's Password]

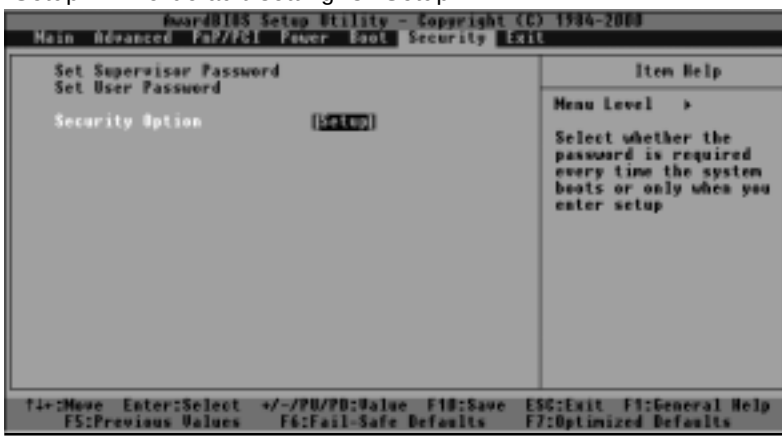
When the item "Set User's Password" is highlighted on the Security Main Menu, hit the <Enter> key to activate the following screen. When prompted, type in User's password in the dialogue box to set or to change the User's Password.


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Set Supervisor Password
Set User Password
Security Option [Setup]
Item Help
Menu Level ▸
Change/Set/Disable Password
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

[Security Option]

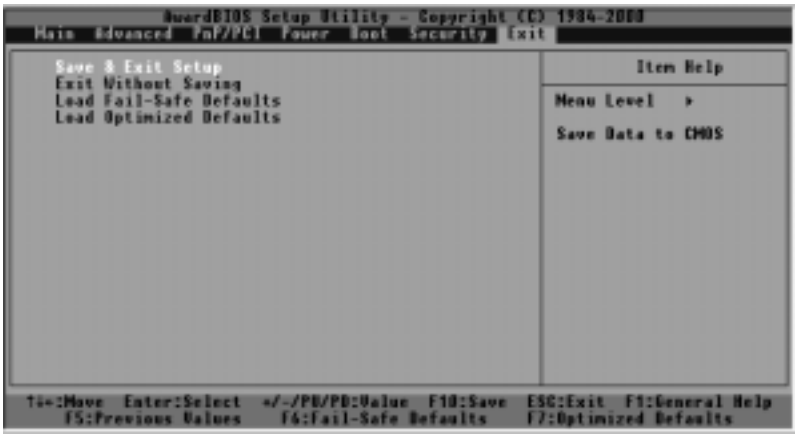
When the item "Security Option" is highlighted on the Security Main Menu, hit the <Enter> key to activate the following screen.

This option allows the user to determine if the password is required every time when the system boots up or if the password is required only when you enter the CMOS setup. The settings are "System" and "Setup". The default setting is "Setup".


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Set Supervisor Password
Set User Password
Security Option [Setup]
Item Help
Menu Level ▸
Select whether the password is required every time the system boots or only when you enter setup
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

4-9 Exit Setup

Select "Exit" from the Main Menu bar and hit the <Enter> key to activate the following screen:

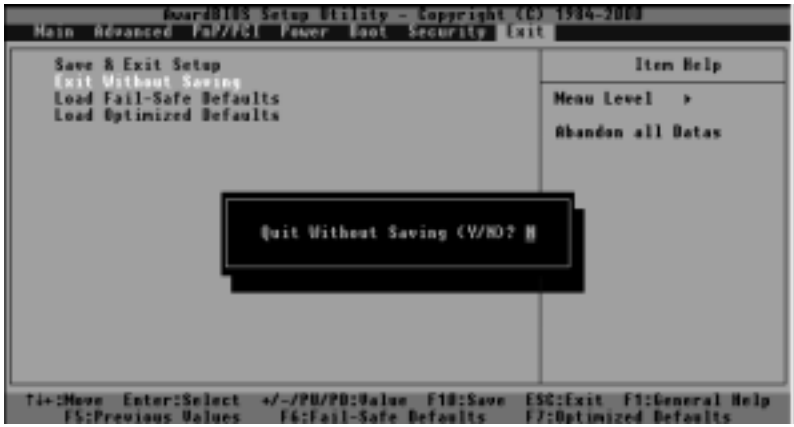

AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Save & Exit Setup
Exit Without Saving
Load Fail-Safe Defaults
Load Optimized Defaults
Item Help
Menu Level ▸
Save Data to CMOS
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

When the item "Save & Exit" is highlighted, hit the <Enter> key to activate the following sub-screen.

AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Save & Exit Setup
Exit Without Saving
Load Fail-Safe Defaults
Load Optimized Defaults
Item Help
Menu Level ▸
Save Data to CMOS
SAVE to CMOS and EXIT (Y/N)? Y
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

[Save & Exit Setup]

If you highlight the letter "Y" and press <Enter> when the above screen appears, you will save the changes you've made in the BIOS program (CMOS) and exit. Your system should, then, continue with the boot up procedure. The options are "Y", and "N". The default setting is "N".


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Save & Exit Setup
Exit Without Saving
Load Fail-Safe Defaults
Load Optimized Defaults
Item Help
Menu Level ▸
Abandon all Datas
Quit Without Saving (Y/N)? N
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

[Exit without Saving]

If you highlight the letter "Y" and press <Enter> when the above "Exit without Saving" screen appears, all the changes you've made in the CMOS will not be saved before you exit the CMOS Setup. Your system should, then, continue with the boot up procedure.

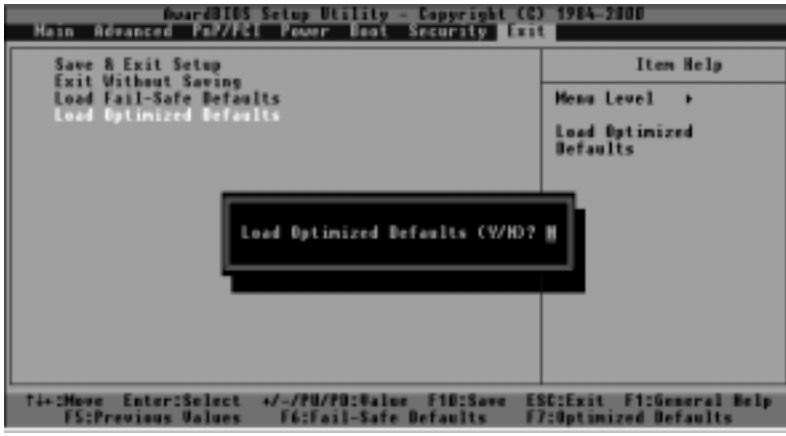
[Load Fail-Safe Defaults]

When the item "Load Fail Safe Defaults" is highlighted, hit the <Enter> key to activate the following screen:

AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Save & Exit Setup
Exit Without Saving
Load Fail-Safe Defaults
Load Optimized Defaults
Item Help
Menu Level ▸
Load Fail-Safe Defaults
Load Fail-Safe Defaults (Y/N)? N
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

When the dialogue box appears in the above screen, press the key "Y" to load the BIOS Fail-Safe default values for the most stable system operation. The settings are "Yes" and "No". The default setting is "No".

[Load Optimal Defaults]


AwardBIOS Setup Utility - Copyright (C) 1984-2000
Main Advanced PnP/PCI Power Boot Security Exit
Save & Exit Setup
Exit Without Saving
Load Fail-Safe Defaults
Load Optimized Defaults
Item Help
Menu Level ▸
Load Optimized Defaults
Load Optimized Defaults (Y/N)? N
↑↓:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

When the dialogue box appears in the above screen, press the key "Y" to load the default values for the optimal system performance. The settings are "Yes" and "No". The default setting is "No".

Appendix A: Award BIOS POST Messages

During the Power On Self-Test (POST), if the BIOS detects an error and correction is needed, then, the BIOS will activate the alarm or display a message.

If a message is displayed, it will be accompanied by the following:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

POST Beep

Currently, there are two kinds of beep codes in the Award BIOS. This code indicates that a video error has occurred and that the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your Rambus error has occurred. This beep code consists of a single long beep repeatedly.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes messages for both the ISA and the EISA BIOS.

CMOS BATTERY HAS FAILED

CMOS battery is no longer functional. It should be replaced.

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press <Enter>. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

DISPLAY SWITCH IS SET INCORRECTLY

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

EISA Configuration Checksum Error
PLEASE RUN EISA CONFIGURATION UTILITY

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.

EISA Configuration Is Not Complete
PLEASE RUN EISA CONFIGURATION UTILITY

The slot configuration information stored in the EISA non-volatile memory is incomplete.

Note: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT

Cannot find or initialize the floppy drive controller. make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

Invalid EISA Configuration
PLEASE RUN EISA CONFIGURATION UTILITY

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

KEYBOARD ERROR OR NO KEYBOARD PRESENT

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Memory Address Error at ...

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory parity Error at ...

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY SIZE HAS CHANGED SINCE LAST BOOT

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

Memory Verify Error at ...

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS NOT FOUND

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

OFFENDING SEGMENT:

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

PRESS A KEY TO REBOOT

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM PARITY ERROR - CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

Should Be Empty But EISA Board Found
PLEASE RUN EISA CONFIGURATION UTILITY

A valid board ID was found in a slot that was configured as having no board ID.

NOTE; When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Should Have EISA Board But Not Found
PLEASE RUN EISA CONFIGURATION UTILITY

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Slot Not Empty

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT ...

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

Wrong Board In Slot
PLEASE RUN EISA CONFIGURATION UTILITY

The board ID does not match the ID stored in the EISA non-volatile memory.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

FLOPPY DISK(S) fail (80) ® Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40) ® Floppy Type dismatch.

Hard Disk(s) fail (80) ® HDD reset failed

Hard Disk(s) fail (40) ® HDD controller diagnostics failed.

Hard Disk(s) fail (20) ® HDD initialization error.

Hard Disk(s) fail (10) ® Unable to recalibrate fixed disk.

Hard Disk(s) fail (08) ® Sector Verify failed.

Keyboard is locked out - Unlock the key.

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

Keyboard error or no keyboard present.

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop.

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

BIOS ROM checksum error - System halted.

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail.

BIOS reports the memory test fail if the onboard memory is tested error.

Notes

Appendix B: Award BIOS POST Codes

This section lists the POST (Power On Self Testing) Codes for the Award BIOS.

POST (hex)	Description
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	1. Disable PS/2 mouse interface (optional). 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). 3. Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.

POST (hex)	Description
0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
15h	Reserved
16h	Initial Early_Init_Onboard_Generator switch.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved
23h	1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead. 3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information. 4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 5. Early PCI initialization: -Enumerate PCI bus number -Assign memory & I/O resource -Search for a valid VGA device & VGA BIOS, and put it into C000:0.
24h	Reserved
25h	Reserved
26h	Reserved
27h	Initialize INT 09 buffer
28h	Reserved
29h	1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU. 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed. 5. Invoke video BIOS.
2Ah	Reserved
2Bh	Reserved
2Ch	Reserved

POST (hex)	Description
2Dh	1. Initialize multi-language 2. Put information on screen display, including Award title, CPU type, CPU speed ….
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard except Winbond 977 series Super I/O chips.
34h	Reserved
35h	Reserved
36h	Reserved
37h	Reserved
38h	Reserved
39h	Reserved
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	1. Calculate total memory by testing the last double word of each 64K page. 2. Program writes allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Reserved
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.

POST (hex)	Description
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	1. Initialize Init_Onboard_Super_IO switch. 2. Initialize Init_Onboard_AUDIO switch.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reserved
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
6Eh	Reserved
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved
71h	Reserved
72h	Reserved
73h	(Optional Feature) Enter AWDFLASH.EXE if : -AWDFLASH is found in floppy drive. -ALT+F2 is pressed
74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM…..
76h	Reserved
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Reserved
7Dh	Reserved
7Eh	Reserved
7Fh	1. Switch back to text mode if full screen logo is supported. -If errors occur, report errors & wait for keys -If no errors occur or F1 key is pressed to continue: ◆Clear EPA or customization logo.

POST (hex)	Description
80h	Reserved
81h	Reserved
82h	1. Call chipset power management hook. 2. Recover the text font used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	1. USB final Initialization 2. NET PC: Build SYSID structure 3. Switch screen back to text mode 4. Set up ACPI table at top of memory. 5. Invoke ISA adapter ROMs 6. Assign IRQs to PCI devices 7. Initialize APM 8. Clear noise of IRQs.
86h	Reserved
87h	Reserved
88h	Reserved
89h	Reserved
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code
94h	1. Enable L2 cache 2. Program boot up speed 3. Chipset final initialization. 4. Power management final initialization 5. Clear screen & display summary table 6. Program K6 write allocation 7. Program P6 class write combining
95h	1. Program daylight saving 2. Update keyboard LED & typematic rate
96h	1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table.
FFh	Boot attempt (INT 19h)

NOTES

Appendix C: Award BIOS Error Beep Codes

This section lists the Award BIOS Error Beep Codes.

Beep Code	Error Message Description
1 short beep	System boot.
2 short beeps	Incorrect CMOS setting.
1 long + 1 short	DRAM error.
1 long + 2 short	VGA error.
1 long + 3 short	Keyboard error.
1 long + 9 short	ROM error.
Long beeps	Memory module error.
High beeps	Power error.